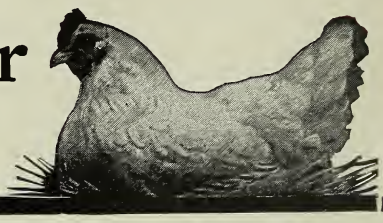
Gleanings in Bee Culture

VOL. XXXIX MARCH 1, 1911 NO. 5

"Keep chickens,"

says the FARM JOURNAL,

and live better at less cost.



THOUSANDS of families, in city and country, have found this the easy way to IMPROVE their standard of living, and at the same time LOWER THE COST. With chickens you always have delicious food, for the family or for "company." Their eggs supply you with ready money or ready food. They are pets that *pay their board.* By keeping chickens, boys and girls can earn money, and also get an excellent training. Sometimes the back-yard plant grows into a large business, like those of CORNING, CURTISS, and FOSTER, who make many thousands of dollars a year.

Raising chickens pays if you know how, whether you keep a dozen hens, or run a large poultry-farm; but **you need the best guides.** Many get from their chickens less than HALF as much as they might get with the guidance of any of these **three splendid modern poultry-books,** which tell the experience and methods of the most successful modern poultry-raisers.

These methods have all been *tested* by actual experience and proved successful. The FARM JOURNAL stands back of them, for it has investigated them and KNOWS. They can be used with six hens or six thousand. Of the Corning Egg-Book alone, **OVER 100,000 COPIES** were sold in one year. Many are using these methods with splendid success and profit.

The Corning Egg-Book is the great guide-book for back-yard chicken-raisers. It tells how two city men in poor health, with no experience, starting with thirty hens, built up in four years an egg business which in one year, with 1953 hens, made an average profit of **$6.41 a year per hen.** These men learned how to make hens **lay the most eggs in winter,** when they get 60 and 70 cents a dozen. This book tells how they found the best breed, why they raise only white-shelled, sterile eggs, how they keep hens **LAYING ALL WINTER,** when they hatch chicks to do their best laying in January, how to mix the feed that produces most eggs, and how their whole system works to that one end—eggs, EGGS, EGGS. It gives photographs and complete working plans of their buildings, which you can build in SECTIONS, large or small as needed.

Curtiss Poultry Book tells how Roy Curtiss, a farmer's boy, starting with a few neglected hens, has built up at NIAGARA FARM one of the **best-paying poultry plants in the world.** Roy agreed that if his father would furnish feed he (Roy) would supply eggs and chickens for the farm table, and all left over were to belong to him. In two years Roy was using so much feed that his father had to cry quits, but the boy kept right on. His brother joined him, and the business grew and grew. But they had no guidance, and had to learn by their own mistakes. Such a guide as the **Curtiss Poultry Book** would have saved them thousands of dollars. This capital book was written right at Niagara Farm by the veteran poultryman, **Michael K. Boyer.** He says he never saw a general poultry plant so well managed. Every day shipments go off, every day money comes in. Their percentage of fertile eggs, of live strong chickens hatched, of day-old chicks shipped without loss, is really wonderful. This book gives all their methods and feed formulas, tested and improved by years of experience. Many pictures. Whether you raise chickens, ducks, or eggs, have a dozen fowls or thousands, you will find in this book help that you can get in no other way.

"Poultry Secrets" is a remarkable collection of successful "wrinkles" in poultry-raising, secured and edited by MICHAEL K. BOYER (known to poultrymen as "Uncle Mike"). Many of these were treasured secrets of famous poultrymen, guarded with jealous care because of their great value. We paid hundreds of dollars for them. This is the **ELEVENTH EDITION,** and thousands are using these methods with great profit. W. R. Curtiss tells his successful method of **hatching 80 per cent** more pullets than cockerels; the Philo System is described and explained; the "15-cents-a-bushel" and "8-cents-a-bushel" green feed secrets; secrets of the Angell, Palmer, and Hogan Systems; Boyer's method of absolutely insuring fertility of eggs for hatching; Townsend's System for preventing death of chicks in the shell; Felch's famous mating chart, suppressed for many years; feeding and fattening secrets; and **MANY OTHER PRICELESS SECRETS,** are here disclosed for the first time.

ANY ONE of these books and Farm Journal balance of 1911 and all of 1912,	ANY TWO of the books and the Farm Journal for three years,	ALL THREE of the books, and Farm Journal for two years,
50 cents	**$1.00**	**$1.00**

Be sure to say plainly **WHICH BOOK** *or books you want.*

Farm Journal is the standard paper for everyone who grows or wants to grow fruit, vegetables, poultry, or stock of any kind. It is 33 years old, and has over **750,000 subscribers,** in all parts of the country. "Judge Biggle" and "Peter Tumbledown" are characters better known to many than Hamlet or Micawber. It has a fine poultry department, more valuable than most poultry papers. It is a favorite paper with housekeepers. Clean, clever, cheerful, amusing, intensely practical. Cut to fit everybody, young or old, village, suburbs, or rural routes. Unlike any other paper and always has been.

On any one-dollar offer, if your order is mailed within TEN DAYS of the date of this paper, we will send you also the famous Poor Richard Almanac for 1911, full of wit and wisdom for the rural home. Address your letter just like this:—

FARM JOURNAL, 117 Clifton St., Philadelphia.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department
E. R. Root, Editor
A. L. Boyden, Advertising Manager
J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX MARCH 1, 1911 NO. 5

Editorial

E. R. ROOT IN FLORIDA.

By the time this issue reaches our subscribers E. R. Root will be in Florida with headquarters at Bradentown, where he has temporarily removed his editorial sanctum. He proposes to make a number of side trips from Bradentown to a number of points in Florida, equipped with notebook and camera. Mr. Root will return to Medina about the middle of March.

SPRAYING FRUIT-TREES WHILE IN BLOOM.

The article by C. E. Layman, in this issue, page 139, is true, every word of it. Lay this journal aside; mark the article, and hand it to your neighbor fruit-grower who sprays at the wrong time, or who imagines that your bees are damaging his fruit. If you haven't any such neighbors, cut it out and paste it in your scrap-book. You may need it some time in the future.

ANSWERING QUESTIONS.

We are always glad to clear up any difficulties that may exist in the minds of our readers, especially the beginners, who can not help being somewhat bewildered when reading the multitude of different plans for preventing this, that, and the other; but of late, in quite a number of instances, we have been unable to give satisfactory answers for the reason that the questions were worded in such a way that we could not possibly tell what plan or method the beginner had in mind. If the page and number of Gleanings are given in which the plan appeared, or the name of the book, or other bee-journal, as the case may be, there need be no misunderstanding.

THE SIMMINS METHOD OF SHIFTING FLYING BEES.

Attention is drawn to the article on page 132 of this issue by Samuel Simmins, showing the method that he used as early as 1893 for shifting the flying bees from one hive to another to prevent swarming. While the basic principle of this is the same as that used by J. E. Hand, there is a difference in the manner of carrying it out. In the J. E. Hand arrangement the bees go to *precisely the same entrance* after the shift that they did before. In the Simmins hive they go to *another entrance*, but so near the first one that they may almost be considered the same. Both claim for their adaptation of principle the control of swarms and the continuous production of comb honey.

We have examined the references given by Mr. Simmins, and find that all his claims as to his early use of the idea are sustained. We hope some of our readers will be in a position to test these two plans and report.

ANOTHER COMB-HONEY CANARD FROM AN UNEXPECTED SOURCE.

When we attended the Indiana State Bee-keepers' convention on the 2d of February we paid our respects to the comb-honey canard because we knew that one or two reporters were present, and we desired an opportunity to impress on them the fact that comb honey is not manufactured, never was, and that there was a reward of $10,000 to prove the existence of such an article as manufactured comb honey on the market that would deceive an ordinary consumer. Two of the Indianapolis papers quoted us very accurately—the Indianapolis *Star* and the Indianapolis *News;* but the Indianapolis *Sun* of Feb. 4 put it out in this fashion:

> A talk by E. R. Root, editor and lecturer, held the attention of the Association. Mr. Root encouraged the growing of alfalfa, but condemned the manufacture of honey. He said he believed most of the comb honey is manufactured and not produced by the bee.

Of course, we are writing a protest, and we respectfully urge the Indiana bee-keepers, at least, to follow it up. It is bad enough to have an ordinary item in a paper telling about manufactured comb honey; but it is infinitely worse when one of the editors of one of the leading bee journals is quoted as implying that comb honey is manufactured, and that he condemns the practice, etc.

THE SWELLING AND SHRINKAGE OF BOARDS.

We have been making some experiments in testing the "come and go" of boards, especially those composing the covers and bottom-boards when placed under different conditions. For example, both of these articles, after being made up and put in hot water, are kept there for 24 hours. They are then put on top of a radiator for the express purpose of determining the amount of shrinkage that will take place as well as the checking and warping. While this is a

very severe and hard test, going rapidly from one extreme to the other, it gives us an opportunity to get results in a very short time.

Well, we observe that ordinary good dry lumber, eight inches wide, will come and go from one extreme to the other from ¼ to ⅜ of an inch. For example, if a hive-cover that is just right in Florida during the rainy season were suddenly transferred to Colorado, under the dry hot sun, we might observe that amount of come and go.

The lesson of all this is the great importance of having our covers and bottoms so constructed that the individual sections or parts of them may shrink or swell without tearing the combination apart.

SHIPPING-CASES WITH CROSS-PARTITIONS OF CORRUGATED PAPER; A TIME TO WAKE UP.

AT both the Indianapolis and the Cincinnati conventions we emphasized the importance of larger and stronger comb-honey shipping-cases—larger, to accommodate the cross-partitions forming compartments for each individual section; and stronger, to stand the rough usage that shipments of comb honey very often receive. It would make an increased cost of, possibly, four or five cents per case; but what is four or five cents as compared with the contents, that are worth anywhere from $3.00 to $5.00 per case? Why should bee-keepers continue the old policy of shipping fragile combs on no-drip cleats in cases that are admittedly too weak to stand the kind of treatment that freight-handlers are now giving them? Put the question squarely up to any bee-keeper, and ask him whether he would not be willing to insure the safe arrival of his comb honey by the payment of 5 cts. per case, and he will tell you every time that, if he can get these cases, he would much rather prefer to pay the insurance rather than to sustain a loss of, possibly, fifty times as much, as a result of broken-down comb honey shipped in the regulation way.

But the question may be asked, "Why do not the supply-dealer and manufacturer offer these cases to the public?" Simply because both the bee-keeper and the dealer have been too slow to see the importance of better cases for shipping honey. Now they are beginning to wake up, and it is high time too.

At the Cincinnati convention we asked Mr. Weber what had been his experience in shipments of comb honey in the corrugated *paper* cases with cross-partitions. "Very satisfactory." Then what objection was there to these paper cases? "Nothing," said he, "except that they do not stand rain or wet." He explained that it was almost impossible to keep shipments of comb honey out of the rain *en route* from the warehouse to the cars and from the cars to warehouse again. Every now and then a shipment of honey will get wet. If the cases are made of wood, no great damage will be sustained; but if made of paper they are liable to go to pieces.

It was pointed out at both conventions that a paper case would stand the punching of a sharp instrument or of a sharp corner better than a wooden case. The paper will dent in, rather than cause a jar to the whole case of sections. In this one respect the corrugated-paper cases have the advantage over the wooden ones that are not so yielding. The paper cases have another advantage in that the flaps bow outward, making a sort of cushion or spring, and this further protects the honey against jars or rough handling.

The supply-dealer and manufacturer will be only too glad to furnish better and stronger cases when their customers ask for them. It is passing strange that we have been content for years to ship our honey in these frail cases, and have been pocketing our losses year in and year out when we could just as well have saved them.

There, now, Mr. Beekeeper, if you want better shipping-cases, and are willing to pay more for them, go after your dealer. He is bound to supply you what you want. Comb honey is more easily broken and spoiled than most articles in the fragile list; and yet, in spite of its value, instead of being carefully packed, it is too often sent in a plain solid box without being cushioned in any way.

"SWEETENING RAILROAD MEN;" A GOOD SUGGESTION.

A FEW days ago one of our old subscribers, Mr. M. D. Johnson, of Webster, Ia., gave us a call. During the course of our conversation regarding better methods of shipping comb honey he remarked that he found it paid, and paid well, to sweeten the railroad men all along the line over which his comb honey is shipped. For instance, occasionally when the express train comes in he will take over some nice samples of *new* comb and extracted honey, and hand them out to the expressmen with his compliments. He does the same thing with the freight crew when the freight-trains come in. "It takes but very little honey," said he, "to sweeten up many miles of road, and the effect is magical. Why, I never have any breakages of comb honey, either by express or freight, because I have a good stand-in with the railroad men, and who, because they like me, take particular pains with my honey." This is not a bribe, but it is a very good way to get in close touch with men who hold a considerable part of your property in trust; and "instead of being officious, or too busy to see to anybody, they always have a glad smile," said our subscriber, and say, "What can I do for you?"

This is a good tip to pass along to our readers. It is worth trying. If it is good policy to "sweeten" neighbor women on wash days in the spring, why should it not be equally so, if not more, to sweeten the men who sometimes hold in their possession anywhere from a hundred to a thou-

sand dollars' worth of our property. A broken shipment is more often due to pure carelessness or cussedness on the part of railroad employees than to any thing else. Here is the remedy—"take a stitch in time."

THE OHIO STATE BEE-KEEPERS' CONVENTION AT CINCINNATI.

The Ohio State Bee-keepers' Association met in convention at the Grand Hotel, Cincinnati, Feb. 16 and 17. The attendance was not quite as large as at some meetings, but it was made up of enthusiastic bee-keepers who listened to a number of talks and papers.

There is hardly space for us to give even a digest of the proceedings. Chas. H. Weber read a paper entitled "Shipping Comb Honey." In this he put special emphasis on the importance of careful and honest grading; cautioned against shipping by express, and advised shipping by freight in carriers.

Mr. Chalon Fowls presented a paper showing why bee-keepers should seek to develop their own home markets; showed how one could develop a trade in honey butter, which he would put up in glass.

Prof. N. E. Shaw, State Entomologist, and also State Inspector, read a paper entitled "The Foul-brood Situation in Ohio." He exhibited a map that he had prepared, showing how American foul brood had been found by his inspectors in a large number of counties, and he was fearful that the other counties that had not yet been visited also contained considerable disease. He and his inspectors were able to cover only a limited portion of the State, owing to the limited appropriation at their command, for the Ohio brood bill had been enacted into law *after* the Legislature had made its general appropriation for the Department of Agriculture; but the Department had made arrangements by which his nursery inspectors could devote a little of their time to the inspection of bee diseases; but he hoped that, with the larger appropriation, with a specific sum for bee-inspection work, which he would get from the Legislature at this coming session, he would be able to cover a a larger field.

Cincinnati, outside of New York and Chicago, probably has the largest market for honey of any city in the United States; and Mr. Muth questioned whether it would not outstrip Chicago. It is the center of a line of railroads, and on the Ohio River. For that reason it has cheap transportation from the South. Since the days of Chas. F. Muth, of many years ago, honey has been streaming into Cincinnati and going out. Cincinnati is also a large center of baking interests, and therefore consumes no small share of the extracted honey received at that market not suitable for table use.

Some discussion was aroused whether there was any such thing as a red-clover queen and red-clover bees that would actually work on common red clover. While we stated that we had at one time strains that would work on the plant it was easy to see that there was a big question-mark in the minds of some. The report given on page 149 of this issue, by J. F. Brady, is a sample of many others we have received, and ought to go far to set at rest any question on this point.

We met a number of bee-keepers from Kentucky, and received the gratifying assurance that the Kentucky bee-keepers are happy over their new foul-brood law and the good work that is being done in eradicating disease.

IS IT POSSIBLE TO SHUT BEES IN THE HIVES DURING THE SPRAYING OF FRUIT-TREES? TAKING A STITCH IN TIME.

EVERY spring we get numerous inquiries as to whether bees can be shut in their hives during the time that ignorant fruit-growers are spraying their trees while in bloom. We regret to say that this is not practical; that is to say, it would not be possible to shut bees in the hives by nailing wire cloth over the entrance. This might be done, however: Nail wire cloth over the entrance, and then place a screen top over the whole top of the hive, and over this again the regular hive-cover raised up about an inch, so as to let in the air, and yet shut out the direct rays of the sun and storm.

But the spraying in bloom may last three or four weeks, because different trees come into blossom at different times. The only thing that the bee-keeper can do is to hand out to such ignorant or willful offenders some of our little pamphlets entitled "The Bee-keeper and the Fruit-grower," and ask them to read the statements of experiment stations, showing that it is bad policy for the fruit-grower as well as for the bee-keeper to spray trees while in bloom. See the article by C. E. Layman, on page 139 of this issue. The best authorities on apple-growing and fruit-growing are on record to that effect. See what Albert A. Waugh, one of the leading authorities in the United States, has to say in his book entitled "The American Apple Orchard," published by the Orange Judd Co., New York.

In many cases our friends by using tact, and the pamphlets referred to, have induced the fruit growers to let up on their spraying, and, instead, to spray before and after the trees are in flower.

Say! it wouldn't be a bad policy to sweeten some of these people with a few nice samples of comb and extracted honey some two or three months *before* the spraying season comes on. It doesn't cost much to get on the *good* side of them if you begin *early*. This literature ought to be handed out to them after they have been sweetened up, and when they are in a good humor toward you, rather than after they get started to spraying at the wrong time, and when they would be inclined to resent your polite protest that they are destroying *your* property. See?

Stray Straws

By DR. C. C. MILLER, Marengo, Ill.

D. A. JONES was the man from whom I got the T super, the best section-super I ever knew. I never learned where he got it. [Does any one know who invented the T super?—ED.]

E. S. MILES, have you not been told that a non-swarming bee can never be? In the face of that, don't you think it is impertinence on your part to come so near it as you do on p. 68? Now you quit that.

BEER-DRINKING in Germany is on the decline, strange as it may seem. In 1909 the per capita consumption was 29.37 gallons, as against 31.22 in 1908, and 33.02 in 1900. The emperor himself is laboring earnestly against the use of beer, especially in the army and navy.—*Chicago Record-Herald.*

S. D. HOUSE, p. 85, advises 2-in. glass in shipping-cases. Why? Just once I used 2-in. glass, and it doesn't show the honey so well. After shipping thousands of cases with 3-in. glass, I know of no objection except cost. [The wide glass makes the wooden strips, top and bottom, narrower. The narrower these strips the less power they have for holding the case from racking during shipment. If it were not for the glass front in cases they would be much stronger. —ED.]

CANADIAN duty on honey from the United States is 3 cents a pound. The duty the other way is 20 cents a gallon, or 1⅔ cents a pound. If Taft has his way, honey will pass free of duty both ways. That would be more neighborly. [Mr. Taft is doing good work. Reciprocity is both neighborly and Christianlike. It looks now as if the President would have to use his "big stick" on the reactionary Senators. We do not, care, just so we have suitable trade relations with Canada.—ED.]

J. MAKSAY asks if I endorse that view on page 80, that swarm prevention is "a thing that exists only in the minds of brainless philosophers." I hardly think friend Hand meant exactly that, but, rather, that he uses the word "prevention" with some unusual meaning; for I do not believe he would be so unkind as to declare without brains the thousands of us who believe in swarm prevention. However we may differ as to the most profitable way we are agreed that it is not at all impossible to prevent swarming, using the word with the dictionary meaning, "to stop or hinder from happening by means of previous measures."

R. GOELDI puts pasteboard under bottom-bars in winter; and every 20 or 30 days, with differently colored pencils, makes a mark about the droppings and then cleans them off. He finds the winter-seat may be in the middle, at either side, or at either end. Some colonies remain in the same seat all winter, upon each warm spell bringing honey from surrounding combs. Some "wander," moving bodily from time to time to where they find a fresh lot of honey.—*Schweiz. Bztg.*, 26. [A good scheme, this! An examination of the brood-nest during the winter will also show how the bees of a colony will "wander"—how they will squat here and then there, according to conditions. —ED.]

EVER HEAR the story of Doolittle and the peanuts? It was in his young days, when railroad cars in that region were made by Eaton, Gilbert & Co. He was on a train, and, with some other young fellows, was having a good time eating peanuts. The conductor, coming along and seeing the muss they were making on the floor, said, "Eating peanuts on this train is not allowed." "Oh! but there is an exception made in my case," replied Doolittle. "Don't you see that it says on the door, 'Eat on, Gilbert and company'? My name is Gilbert, Gilbert Doolittle, and these fellows are my company." The conductor, nonplussed at the new way of reading "Eaton, Gilbert & Co.," left them in peace to continue their banquet. But, mind you, I don't vouch for the truth of the story. It may be a slander on our dignified friend.

J. HERTER had a thermometer in a brood-nest. Jan. 17 it stood at 34°F. He struck a few heavy blows on the hive, and in 20 minutes the mercury rose to 80°! That 46° rise in 20 minutes shows what bees can do in getting up heat. [The same principle of disturbance operates to heat up bees when they are being moved either by train or wagon. They seem to require ten times the amount of ventilation at such time as they do when quietly at home. Some years ago, when snow was on the ground and the temperature was about 10 above zero, after we had been out hunting we came to one of our outyards. One of the parties, for experiment, having a small rifle, was asked to send a bullet through a hive containing a strong colony. He did so; and within a few seconds, comparatively, we opened up the brood-nest and found the bees were scattered all over, and a hot wave of air came up from the cluster as we raised the quilt. The bees were very much alive, and seemed to be far from a condition of hibernation at that particular moment. The bullet had gone clear through the center of the brood-nest, and evidently had struck a part of the ball of bees. They were no longer in a compact mass, but spread all over the hive in almost no time. It would appear that the sudden shock aroused their anger. Evidently the psychic influence on the bees is the same as that of human beings. When one answers back "hotly" it simply means that his pulse is high — that the blood courses through the veins at a rapid rate. Perhaps some anatomist can throw some light on this subject.—ED.]

Notes from Canada

By J. L. Byer, Mt. Joy, Ont.

My curiosity is aroused in regard to that advertisement in November Gleanings, asking for dead drones and queens. What can they be wanted for, any way? Last spring, between fruit bloom and clover, I was in some yards where dead drones could have been gathered by the *gallon*. If there had been a market for them then, what a bonanza it would have been for the owners!

Regarding the advice given by J. S. Patton, p. 767, Dec. 1, as to having hogs in the apiary to keep down the grass, I would say to any one thinking of trying the plan, "go slow." At one of our yards the owner of the farm allowed some hogs among the bees, thinking they would do no harm; but the second day they were in the yard they got to rubbing against the hives, and upset a good colony, entirely ruining it for the season.

Editor Hutchinson says in the *Review* that dummies or division-boards are all right in hives with self-spacing frames, but that they have no use in a hive that has frames of the loose hanging variety. Why not, I wonder? While dummies are not necessarily conservers of heat, yet they often come handy for many purposes such as forming nuclei, etc. Then if one is contracting for wintering, they are necessary to crowd the bees up; for, although a comb will, in a sense, act as a division-board, yet bees will cluster on the outside of the comb, while the board would keep them in. Personally we like a dummy in every hive, and we find the habit growing on us, as a few years ago we had no partiality on the question.

Friend Holtermann's method of carrying hives into the cellar is all right if the combs are of the self-spacing kind and the hives are full of frames. But lest some novice should try to carry a hive like that when the frames are of the loose hanging variety, a word of warning is necessary, as in a case of that kind something would be doing, surely My hives have loose frames, and I believe I can carry them with as little strain to the body, and with as little jarring of the hives, as though the frames were fast. *But* I want cleats on the ends of the hives; in fact, I want them there for handling the hives at *any* time when it is necessary. For carrying in the cellar, the left arm is passed over the top of the hive, with the right hand at the bottom, the rear end of the hive, as it were, resting on the side and left hip. In that position I can carry any number of hives with little fatigue and practically no disturbance to the bees.

In the death of D. A. Jones, Nov. 20, Canada loses one of the pioneers of bee-keeping. While Mr. Jones was not engaged in bee-keeping during the latter years of his life, no doubt many of the older readers will remember him as being very prominent in the business some years ago. He was the founder of the *Canadian Bee Journal*, and was one of the first to import queens from Italy to this country. He traveled extensively, and in one of his trips he visited Cyprus and Palestine to investigate the bees of that country. While I never had the privilege of meeting Mr. Jones, yet my father and grandfather were well acquainted with him, as he was born within a few miles of our home. Mr. Jones was 75 years old, and for over 40 years he had been postmaster in the town of Beeton. This name, by the way, was given because of the industry established by him at that place so long ago.

The recent tariff arrangements between the United States and Canada came as a big surprise to the bee-keepers of this country in so far as the tariff on honey is concerned. Judging from the many letters received, the majority of bee-keepers on this side of the line feel that they have been handed a "lemon." Personally, the writer inclines toward free trade in *all* commodities; but it does seem unfair that, while many of our products are put on the free list, the most of the manufacturers are still protected heavily. For instance, take the biscuit industry. While the most of the raw materials, including honey, used in the manufacture of these articles, are placed on the free list, yet the finished product is protected by duties ranging from 25 to 32½ per cent. One of the hardest knocks to the Canadian producer will be the free admission of honey from the British West India Islands; for, with the cheap labor in these countries, such honey will be hard to compete with. Many Ontario producers feel that the markets they have been building up for years will now, by reason of geographical conditions, be snatched away from them. Whether it will work out as bad as it looks is a matter for the future to decide; but I believe I am safe in saying that nine-tenths of the bee-keepers of Canada would prefer to have matters left as they were before the recent changes were suggested. We have mentioned West India honey as a competitor with our own product; and I might explain that, while it will never supplant our honey for table use, yet the better grades of it may be used for manufacturing; and some bottlers have been mixing it with our best clover honey and palming it off as pure Ontario honey. With the duty removed, the temptation will be much stronger to get this honey; and, all things considered, it does not look any too bright for the marketing of our product under the new regulations.

Bee-keeping Among The Rockies

By WESLEY FOSTER, Boulder, Colo.

ALFALFA FOR STOCK, INSTEAD OF HAY.

The protection and care man gives to his plants and flowers cause them to lose some of their native resistant qualities. And so we find the apple-trees in our orchards much more subject to injury from pests and disease than their prototype the crab. The same thing is true of alfalfa. I suppose the original stock from which the alfalfa sprang, as we now know it, was not subject to injury from disease and pests. Any plant seems to have only about so much energy; and when, through the care given by man, it becomes unnecessary to resist unfavorable conditions, the plant then has this unused vitality to put into greater growth in plant and more succulence. This gain in succulence makes the alfalfa more appetizing to the grasshoppers, and the lowered resisting power gives the alfalfa rust a chance. Now comes the alfalfa-leaf weevil in Utah, and it is doing much damage in the districts where alfalfa most abounds; and the damage is greatest in the old fields where it has been grown for years. This is another fact to substantiate the belief that alfalfa is dimished in vitality by frequent cutting, and, further, that it does not build up the soil in any thing but nitrogen. If one cuts his alfalfa, and continues to haul the hay off and sell it, he will, in a few years, have a very much impoverished farm. Keep stock on the farm, and sell your hay in the form of beef or mutton.

There is no doubt that some of the older farms in the West need lime where alfalfa has been raised continually on one piece of ground.

Bees were bringing in pollen on "ground-hog's day;" maples were in bloom; the bees were about the willows, and I was told that a few dandelions were out. My! what a winter season! The bees were getting pollen on the 19th of December; then early in January it was 18° below zero, and the bees were unable to get to their stores two inches inches away, and a good many colonies perished. Then they were again gathering pollen, and perhaps a little nectar, around the first of February, with snow flying, and a regular blizzard on the range but twenty miles to the west. We certainly have climate in all her moods out this way. It's not strange the queens don't know when to start laying.

BEET SUGAR AGAIN.

On page 33, Jan. 15, I am taken to task as to the accuracy of my statement in regard to cane and beet sugar. Here we have two kinds of sugar—one the beet sugar made in the numerous factories in Northern Colorado, owned by The Great Western Sugar Co. This sugar is demonstrated at pure-food shows as beet sugar, and it is fair to assume that the thousands of sacks piled up in the storage-rooms of the factory, and the thousands of tons of beets being ground up every day, is evidence that this sugar comes from the beet. Then we have a sugar here with the marking of The American Sugar Refining Co., San Francisco, and called cane sugar. The latter is two to three times as fine as our local beet sugar, and tastes sweeter—that is, the taste comes sooner when placed in the mouth, caused by the granules melting more readily. The difference is noticeable when mixing beefeed. The cane or finer sugar dissolves more readily, and there is less liability of undissolved granules being found in the bottom. My mother tells me beet sugar is better for cake frosting than cane because it makes better frosting, and is made quicker. I should think this would prove that the beet sugar goes back to crystals sooner than the finer cane sugar.

Then from a mere theoretical standpoint would not a coarse-grained sugar return to granules sooner than a finer grain? This is certainly true of honey. A bee-keeper who fed a hundred sacks of sugar the past fall said his observation had been that cane sugar could be mixed with water cold without its granulating in the cells, while beet sugar, to get the same results, had to be mixed with hot water. He bought cane sugar, although it cost him 20 cents a hundred more than the local beet sugar. This I know, that the housewives here in Colorado declare that the local beet sugar is not so good for fruit or cakes, except frosting or other use, as the finer-grained sugar called "cane" which is shipped here from San Francisco. The bee-keepers are influenced by their wives; and when they are told that the cane sugar is the best, that is the kind they are going to buy for their bees; for the best sugar has been proven to give the best results in feeding. The cane sugar on the market here tastes sweeter, looks nicer, and is finer-grained than our local beet product. The sugar company is making a great effort to popularize the beet sugar with the housewives; they are continually conducting cooking and demonstration classes in fruit-canning with beet sugar.

COLORADO BEE CONVENTION.

In spite of the failure of the honey crop throughout Northern Colorado a good number of bee-keepers from this part of the State were at the convention. The southern part of the State was represented by several beemen, and also several came from the western slope. The meeting was a success in every way; and the work outlined, if carried out, will certainly aid the bee industry of Colorado very materially.

There are two lines of discussion that come up at every convention. They are: "How to get a better price for the product, or a larger share of the consumer's dollar," and "The methods of handling bees to get a larger return from each hive in honey."

How to get more for the product was the first thing that came up in the question-box, and the subject elicited lively discussion. The facts brought out were that the producer was getting about 35 cents of the consumer's dollar in extracted honey, and forty to fifty cents in comb honey. The railroads come in for an undue amount for freight, and the cost of bee-supplies keeps steadily advancing, so that the profits are not what they should be. The freight rate on honey by the carload is about four times what it is on potatoes a like distance. The association has outlined work for the coming year that will, if carried through, bring about a more equitable rate on honey shipments. The fault lies quite largely with the bee-keepers themselves in not calling these unfair rates to the attention of the railroads.

Mr. Hermann Rauchfuss gave a valuable talk on good queens and proper hive manipulations. He advocated wintering bees in two-story hives, even if doubling up the colonies had to be done. In this way old queens could be gotten rid of, and the strength of each hive would be such that it could well withstand the severe conditions of winter. Mr. Rauchfuss made a strong point in recommending that bee-keepers raise their own queens in their own yards, and keep each queen among the bees where she was raised. The introducing of queens into strange hives is the cause of many a fine queen soon deteriorating. While the bees do not kill her, they see that in some way she is not at home, and keep fussing and pulling away at her until many of them become devoid of hair. A queen that is being continually worried will never do much good work. When each bee-keeper raises his own queens it is easy to keep each queen among her own "home folks," and under these conditions she is contented and does her best work.

For a long time the Western bee keepers have been 'put out" by the dozens of different sizes of shipping-cases for comb honey that have been sold. The trouble does not become apparent until half a dozen or so of bee-keepers go to load a car of honey. The cases simply will not load compactly at all. Some are a quarter of an inch wider than others; some are longer, and no two are the same depth, although they may all be double tier and hold 24 sections. We are now going to have a uniform case if the efforts of Mr. Frank Rauchfuss, manager of the Colorado Honey Producers' Association, materialize. The uniform size of cases, as suggested by Mr. Rauchfuss, was unanimously endorsed by the State Association. Mr. Rauchfuss also gave some pointed remarks on local shipments of comb honey. Every shipment of it going locally should be crated in carrier crates holding four or eight cases, and packed with straw. It will not be long until comb honey so crated will take a lower rate, and then no intelligent bee-keeper will fail to crate his honey properly for shipping. Mr. Rauchfuss said that he had not received a shipment of uncrated comb honey that came through safely.

The most entertaining feature of the convention was the evening of reminiscence in bee culture, led by Mr. A. F. Foster and others of the gray-whiskered veterans who had had fifty years and more of bee-keeping to their credit. They told of the old-fashioned ways of bee-keeping, and how good the honey tasted in those days; how they robbed the hives, and plugged them to see if they were ripe, as we do now with watermelons.

Pres. Collins and Prof. Gillette each exhibited stereopticon views of the bee's anatomy, work, and methods, and made us much better acquainted with the way they are built and the ready-made tools they are born with.

The Association is making an effort to get a more effective foul-brood law, and also to have a division of bee investigation established at the Agricultural College. This subject was thoroughly gone over, and the legislative committee has a bill introduced in the legislature to establish a division of bee inspection and investigation under the State Entomologist. This will centralize the work of inspection under a very competent man, and every one is urged to write his senator and representative to support the "Bee-keepers' Bill."

The State Entomologist will hire deputies to carry on the work of inspection and investigation, and the work will be prosecuted with vigor. The work that will be carried on in bringing in new and better honey-plants and better bees, and the investigation of methods for the advancement of the industry, will be invaluable to the State.

Prof. Cockerell, of the University of Colorado, gave a delightful talk on "The Evolution of the Bee," and brought out the relationship of all insect life and the influence of bees on flowers and vegetation. The bee is geologically older than man, and reaches up into the almost perfect development of the honey-bee in only about a dozen species, while the cruder and more primitive wild bee is found in thousands of species. The honey-bee is the last word in all bee-life, and has become so firmly established in its position that little change has taken place in its characteristics in many ages.

The work of the State Bee-keepers' Association for the coming year will be largely to secure the reduction of freight rates on bees and honey, and the securing of a new foul-brood law. Right now is the time for every bee-keeper in the State to join, so that the dollar from each member will be available for immediate work. If we secure but a part of the results we are going after, it will be worth many times one dollar to every bee-keeper in the State; so send your dollar for membership to the Secretary, Wesley C. Foster, Boulder, Colo., at once, and urge all your fellow bee-keepers to do the same. We are making the fight for *you*, and we can not do it without some help.

Conversations with Doolittle

At Borodino

EARLY OR LATE SETTING OUT—WHICH?

"I wish to talk with you about taking colonies from the cellar. Shall I set them out early or late?"

"There is no set time as to when bees should be taken out, for years vary so that in some seasons the middle of March is fully as early as the middle of April in others. Our best apiarists are more often governed by the forwardness of vegetation than by any thing else. By very many the right time used to be considered when the elms and soft maples were in bloom. Others left a few colonies on the summer stands during the winter; and when such colonies commenced to find pollen from natural sources, those wintered in the cellar were brought out. Some years ago I set a part of my bees out quite early in March when there were two or three warm days so they could fly nicely. As the weather turned cold again, and continued unfavorable for the flight of bees, all were left in the cellar till about April 1, when about half of them were set out. As the good weather did not continue, the others were left in the cellar till nearly the first of May. As the season advanced it became evident that those set out on April 1 were much the better off, as they had brood in all stages when the later ones had eggs only. As this brood came to maturity these first colonies built up rapidly so as to have the maximum number of bees just in time for the white-clover harvest, while those set out later did not come up to the required standard till about ten days later, so that the result in comb honey was not nearly equal to that of those having a full force at the beginning of the flow.

"On another occasion I set a part of the bees out quite early, and then followed ten days of snow and cold weather so that the rest were not gotten out till three weeks later. In this instance the last out did much the best, owing to many bees in the first lot dying during the cold and snowy time. It kept warm right along after the last were set out; and as they had lost none of their old bees they went to breeding with a vim, so that very many of the colonies had their hives practically full of brood three weeks later, while those set out first did not have bees enough to cover more than two-thirds as much.

"It is hard to tell just when to set bees out, as you will see by the results of these two instances I have given you. However, as a rule you will not go far wrong to set them out with the appearance of the first pollen-producing flowers. I used to advocate waiting till the elm and soft maple were in bloom, as I spoke of at the beginning; but from many years of experience my bees which were set out when pollen from skunk cabbage first appeared have averaged better than those set out later. Where bees winter well in the cellar, there will be little brood in any hives when set out; and the earlier setting-out starts brood-rearing sooner than with the later. I know that it used to be argued that where bees were set out early it took two old bees to perfect one young one; while if set out when the weather had become fairly settled and warm, one old bee would perfect two young bees; therefore it was much to our advantage to wait till the elm and soft maple bloomed, as in the blooming of these trees nature told us that settled warm weather had appeared."

"But you mentioned setting the bees out early, thereby giving them a flight and then returning them to the cellar and allowing them to stay till the elms and soft maples bloom. This would give the bees a chance to unload, thus putting them in a healthy condition, while it would start brood-rearing as well, would it not?"

"That depends very much on other things. If there were only one or two days in March or the first of April for a flight, as is almost always the case in this locality, so that the bees would have to be returned to the cellar the next day, no more brood would result than if the bees were left in, and all the work required for this carrying out and in would be thrown away. If in a locality where a week or more of warm weather is likely to occur in early March, so that the brood started has progressed beyond the egg state, all that in the larval or sealed form would likely be perfected into bees after returning to the cellar. But where colonies are out only long enough for a few eggs to be laid, this brood idea would cut no figure."

"But giving the bees a chance to unload would be beneficial, would it not? As I understand the matter, when in a normal start of health, bees are compelled to void their excreta at certain regular intervals. I know that they do retain them during the winter; and I am told that, just as soon as set out, the first thing they do is to spot every thing in the neighborhood."

"If the bees are wintering so poorly that the fronts of the hives are spotted to running down with excreta, it doubtless would be humane to set them out for a flight during the last of February or in March, should a day occur in which they could fly; but under these conditions there will be little difference in the end any way, for such colonies will be of little value, if any at all, when the white clover arrives, no matter how many times they were set out and in. Where bees are wintering well, your talk about bees spotting every thing in the neighborhood upon being set from the cellar is quite unreasonable, for such is not a fact, as very many colonies consume so little when in winter quarters that they void little more in setting them out than do those during the summer after being shut in during a three-days' storm. My advice is, not to set the bees out till the time for leaving them out for good has come."

General Correspondence

BEE-KEEPING IN FLORIDA.

Introduction.

BY E. G. BALDWIN.

[With the following article we begin the publication of a most interesting series of articles entitled "Bee-keeping in Florida." Mr. Baldwin is well qualified to speak of the industry in his State, for he has traveled extensively and is well acquainted with the conditions, as will be shown by later articles, of which there are thirteen. We may say that we have never before seen so complete and interesting a discussion on bee keeping in any one State. We are sorry that we can not give our readers the opportunity to read the whole series at once, for it reads like a book, and one who starts it can hardly stop until he finishes. Most of the articles are illustrated, and some of the pictures are exceptionally fine.

Mr. Baldwin, after discussing the honey-plants, takes up the difficulties actually encountered, and also has a good deal to say in regard to migratory bee-keeping. Finally he gives a brief history of some of the larger bee-keepers in the State, telling how they succeed, describing their methods, etc. We were surprised to find that there are so many bee-keepers in Florida who number their colonies by the hundred and even by the thousand. We are sure that all of our readers, even those here in the North, will find these articles of great interest.—ED.]

Florida is very much in the lime-light just at present. Never before has interest in all that concerns her seemed so widespread. But, a "little knowledge is a dangerous thing;" for where we cease to *know*, curiosity and imagination begin. Many promotors and land-sharks, taking advantage of the fact, are reaping a golden harvest selling Florida real estate to people who know nothing about the State, but who imagine a good deal.

And Florida is preëminently the land that appeals to the imagination. Geologically, the youngest of the United States; topographically, the most unique; and, geographically, the only peninsular State in the Union, it is at the same time one of the largest and the least known of them all. It is in view of the two facts above outlined, a general ignorance of our State and a growing interest in it, that the following articles have been prepared. Their purpose is achieved if they shall give to those really interested a safer knowledge by which to guide them, and if they shall also, perhaps, keep "fools" from "rushing in where angels fear to tread."

A mere look at a map will only hint at the size of Florida without really conveying a correct idea of it. If some giant surveyor were to place one point of his compass at Fernandina, in the northeast, and then swing 250 miles westward with the other point, he could barely reach the Alabama line on the west. But to encompass the large Keys that nestle all along the southern coast, from Tampa to Miami, on the lower fringe of coast-line, kissed for ever by the great Gulf Stream, he would have to widen his arc by 180 miles—a total span of 400 miles in length. While only a narrow portion of the State, a part called West Florida, has so great a width, still there is a total latitude and longitude of 250 by 400 miles. A wide geographical extent runningnorth and south generally means a wide diversity in the plant or tree life. Of no other State is this diversity of flora more apparent than here. Such wide range of flora must inevitably have a great influence on the question of the nectar-producing sources of the State. But before passing to a consideration of the honey-sources, let me correct a few misapprehensions about the place.

In the first place, Florida is *not* a land of scorching heat. The maximum temperature in summer is seldom higher than 94°; the minimum in winter seldom falls lower than 30°; 60° is the average temperature in the winter season; 82° the average summer temperature, while the average temperature, the year round, is only 71°; and, lying as the State does, slightly to the east of the path of the trade winds, the resulting daily breezes make sultry days extremely uncommon. Sun-stroke is absolutely unknown here.

Secondly, Florida is not a land of poisonous things that creep and crawl. There are deadly snakes, or poisonous snakes, at least, in some portions, of course; but these areas are rather limited in extent, and not in the usual places of access. In ten years the writer has not seen a live rattler here, though he has hunted game over many miles of swamp, hummock, and high pine land.

> An angry bee, with weapon hot,
> That soaked him in a tender spot,

has been the most venomous thing he has encountered here.

Thirdly, it is *not* a "land of flowers." Of course, "Florida" means "flowery," as any Latin grammar or lexicon will tell; but, unfortunately for the poetry of the name, the adjective comes from "Pascua Florida," the Spanish for "Easter Sunday," on which day Ponce de Leon discovered the land. The language of the real-estate men is vastly more flowery than the land they sell, in most cases. Roses can be grown, to be sure, in all the months of the year; but it requires much more care and pains to grow them at all here than in the North. There are many wild flowers through the woods and on the open tracts, but they are usually dull of hue and insignificent in size. Nor are many of them honey-producing; practically none give any considerable surplus honey. The prettiest blossoms are, almost without exception, found on trees or vines.

Not only in terms of botany is Florida a land of trees, but apiculturally, as well, it is the land of tree-honey. That does not mean bee-tree honey, either. To be sure, there are bee-trees galore in the State, and easy to locate, as a rule. One man on the southwest coast told the writer he had 40 bee-trees located, and another has 30 on his "waiting list" right now. Live oaks, pines, and cypresses are rich producers of honey—but

only from the inside! When we say Florida is the land of tree honey we mean it; it is literally true. Four-fifths of all the surplus honey produced in the State comes from the blossoms of nectar-producing trees or shrubs, *not* flowering plants.

De Land, Fla.

To be continued.

EUROPEAN FOUL BROOD.

Curative Measures; How to Proceed in a Large Apiary Run for Extracted Honey.

BY F. B. CAVANAGH.

Continued from last issue, page 109.

Having observed the importance of Part 1, or ridding the hive of diseased material, and Part 2, establishing immunity in *all* colonies in the apiary, let us now consider how we can accomplish these ends effectually with the least financial loss and inconvenience. Assuming that you are a wide-awake bee-keeper, which means that you have discovered the disease within a few weeks of its development, it is improbable that more than one-third to one-half of the colonies in the yard are affected. Such being the case, the following I believe to be the most economical and safest treatment.

Inspect the entire yard at the first sign of the honey-flow, being careful, of course, not to excite robbing, and mark all the hives with indelible crayon, indicating the mild cases by one cross, the bad cases by two, and the healthy colonies, O. K. Double or treble up all badly diseased or weak hives at the time of inspection, as we want them strong to begin with, so that they can spare their brood without bad effects. Also remove these queens as soon as possible, for they are worthless and a detriment to the cleaning-up process.

As soon as the honey-flow is sufficiently good, start enough queen-cells from the best yellow three-banded stock that you can get, to requeen the entire yard. When the cells are ready to introduce, make up enough strong nuclei to supply the healthy colonies with queens, and isolate them from the rest of the apiary (for they are more easily infected than strong colonies), or mate your queens in the full colonies if you prefer.

The honey-flow now being in full blast, the once "bad cases" very strong, and having been queenless at least nine days, brush each of these colonies on to full sheets of foundation and one comb containing some healthy unsealed brood and honey, and a protected queen-cell. The full sheets prevent drone comb, and there is no danger now of developing any disease in the single comb left, every available cell of which will be filled with honey or polished up for the new queen.

Place the brood-nests over strong healthy colonies having their queen confined below. It matters not how many partly filled supers of honey we have between the regular brood-nest and the annexed brood-nest, which now becomes an extracting-super.

The brood-nests which become extracting-supers should never be extracted until all brood is hatched and the cells filled with honey. The pollen will be used up by this time in most cases, and the combs, when dry, will be perfectly safe to use under any circumstances. You will understand that we have nothing in particular to fear from infected honey at this season, when *immunity is established* by the heavy honey-flow; hence the uselessness of twice shaking. Our aim is, in removing the honey, to fortify against reinfection from this source when the season arrives for susceptibility.

Next requeen the slightly infected cases in which the disease has probably by this time disappeared by giving protected cells in place of the queens. At the next extracting, when it is time for the young queens to be laying, put the extracting-supers below the brood-nest, throwing plenty of grass on the entrance to prevent robbing until the bees discover the new order of things. A day or two later, brush these colonies down, placing an excluder to confine the queen in the lower story. If the colonies are strong and the honey-flow good, the bees will be crowded below with the young queen, which will gladly accept the situation. Use the exchanged brood-nest as the future extracting-super, which will soon be filled with honey.

The healthy colonies will now have to be requeened; and, disagreeable as I know it to be, it is necessary to lift off those three or four supers and hunt up the old queen. The nuclei containing young laying queens may be united with the healthy colonies after two days' queenlessness by placing the combs, with bees thereon, in the full hive.

You have, no doubt, been wondering why I advocate brushing instead of shaking. Well, for one thing it is less cruel. The treatment, given as it is, early in the honey-flow, when the nectar is thin and easily shaken out, fills the breathing orifices of the bees, no doubt causing them useless suffering if no other bad effects.

Brush the bees down out of the supers or bodies, as described in the *Bee-keepers' Review* in 1909. Placing the brood-nest to be cleared of bees above the prepared empty hive, remove a comb from the side nearest you; brush the bees in front of the alighting-board, and cover the comb securely. With a Coggshall bee-brush in the right hand, and the smoker held suspended between your body and the hive, the left hand is now free to space the combs toward the operator. First, smoke the bees down while breaking the frames loose; next, pocket the hive-tool and in turn brush the inside of the hive nearest you, and each alternate space between combs, twisting the brush enough to reach both sides of the combs adjacent at once. In our apiaries we work rapidly, using a series of gentle vibrations of the brush, which fans and distributes the small amount of smoke used just where we want it, instant

with dislodging and frightening the bees down. There is no time for them to crawl back to the cleaned surface of the comb before it is slipped over, always toward us, and the other side brushed. At the last comb the brushing will include the furthest side of the hive with the outside of the last comb, when the body or super must be quickly removed. For two years both my assistants and I have used this system entirely when extracting or clearing brood-nests. It is quick and positive in results, a complete "Waterloo" to robbers, easy on the operator, arouses practically no cross bees, and loses fewer queens, we find, than shaking. Like other systems, little acquired knacks soon become fixed habits. The operator learns to puff the smoke behind the end-bars pretty well at the beginning of the operation, which gets the bees well toward the center of the combs and in reach of the brush. Also the smoker bellows, while suspended against the hive, is worked by pressure of the body, which exercise we believe to be healthful, as we always have large appetites when extracting honey.

The system of treatment for European foul brood outlined embodies features which I feel confident will appeal particularly to the specialist in extracted honey, as it is safe, and economical of labor and material. The combs are saved, the infected honey effectually removed, and permanent immunity established. I do not know absolutely what the results would be in a location having *no fall flow*, although I see no reason why they should not be equally favorable; at any rate, I should be very glad to hear from those who try the system under such conditions later. The treatment was evolved from a series of experiments made while studying the suggestions of authorities who know a great deal more about foul brood than I pretend to know. I may also say that I have not had long enough experience to know whether it will always work or not, as I have used it only a part of two years, and used other treatments in the majority of cases; however, the principles appear sound from our present limited knowledge of the disease, and I believe it is worthy of continued and more extensive trial.

Remember above all to be thorough in every thing that is done; for, while black brood is easily cured at certain seasons of the year, if neglected it will at other times spread like wildfire from one colony to another. Thoroughness, vigilance, and diligence mean a healthy apiary the following spring.

ADVICE TO AMATEUR AND SIDE-ISSUE BEE-KEEPERS.

There are methods of cure, some involving the use of the bee-escape, others various manipulations which the expert could use to advantage in a small comb-honey yard, but which are hazardous in the hands of the inexperienced. I have seen so many costly messes which beginners have blundered into in attempted treatments, some of which were the cause of reinfecting entire yards anew, that it seems unwise to advise any other treatment than the McEvoy, and which should not be given until the colonies are made strong by uniting. Hives should invariably be disinfected to make it a success, and the work all done at once, so as to remove contagion from the newly shaken colonies which are most easily reinfected. Make arrangements to requeen with young yellow Italians as soon as possible after treating, for *immunity must be established* for future protection.

At first sight the above may sound enigmatical—to be condemning one treatment for large apiaries and advocating it for small ones; but this is the very point which I wish to impress, viz., that the treatment must vary to meet the requirements of different conditions. I believe it wise in all cases to *get rid of the honey in the hive* which may be diseased. This may be accomplished safely with the extractor by the specialist; but in the case of amateurs it can not be accomplished other than by shaking, for there is usually no extractor and no equipment of combs. It is always best for a beginner to get an experienced bee-keeper to help do the work properly, and for bee-keepers to work together cleaning up one apiary after another in rapid succession, remembering that you are never rid of the disease until your neighbors are rid of it.

A FEW CLOSING HINTS.

Avoid robbing, especially in a diseased apiary, by placing removed supers on an escape-board or inverted cover instead of standing them on end with both surfaces exposed. Have a good robber cloth, and use it. Place heavy supers on the wheelbarrow if the height is more convenient. Use queen-excluders in producing extracted honey. First choice, the wood wire; second choice, wood-bound. Only by their use can we determine with certainty the location of the brood-nest, which is essential in treating a brood disease.

Extracting-combs may be set out for bees to clean up *after all brood has hatched in the fall*, without fear of contagion from black brood. We often pile the supers zigzag in the honey-house and open the door, leaving the bees to do the rest. Neither do we space the combs as formerly, as the wax from gnawed combs is saved on the floor.

European foul brood is a peculiar disease to deal with, and a dangerous one to trifle with. Easy to exterminate during a honey-flow, it spreads like wildfire during a dearth in the breeding season. Let no man boast of a cure, therefore, until the following breeding season confirms his hopes. Be faithful to the *marks on the hive;* requeen and rehoney the hive, even if the disease does *disappear* entirely during the honey-flow. There would be less talk of "the uncertainty of cure" and "danger of returning" if bee-keepers themselves would get down to business and quit playing hide and seek with the disease. Neither should we lose sight of the fact that, by getting our colonies in excellent condition, and with

choice stock, we shall reap big returns the ensuing seasons.

Hebron, Ind.

SIMMINS' METHOD OF SHIFTING THE FLYING BEES.

The "Turn-over" Method, and Double Hanging-chamber Hive.

BY SAMUEL SIMMINS.

In my 1893 edition (p. 242) of "A Modern Bee-farm" I offered my readers a novel plan of working two colonies (or even one colony when strong early, and divided into two). The new plan was that of causing the second hive to supply the supered lot with a constant addition of fresh bees by moving the former to the back, and ultimately to the opposite side from that where it started, so the bulk of the working bees was always in the supered hive.

The rear lot is never clogged with honey, and, as a consequence, is crowded with brood and young bees. Of course this is during the active season, and the process of moving the breeding stock is that of passing it back and forth as its maturing bees are appropriated.

The plan was a great aid to the prevention of swarming; but it was not until 1903 that the idea seemed to catch on in America, and reference to GLEANINGS and other journals of about the year 1905 will show that various bee-keepers put forth a similar idea.

But there are several objections to using separate hives. There is the lifting and changing; but also at times the bees have a habit of persistently finding their own entrance and mother queen, do what one will. I have known bees in hot weather to find their old hive entrance twenty yards away from its original site, on the other side of a large shed.

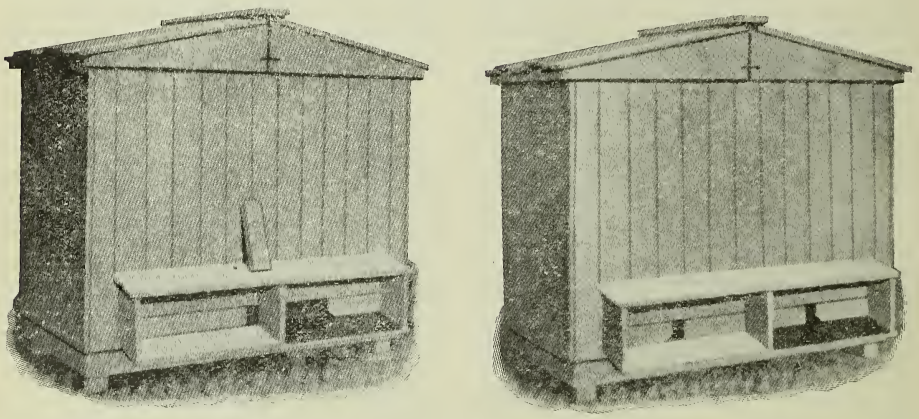
DOUBLE HIVE WITH FOUR ENTRANCES.

These troubles were overcome by using a double hive first made in 1894 on my hanging-chamber principle; and this was arranged with four entrances—two to each stock—one back and front.*

Henceforward if I wanted to unite, it was only a question of closing one of the two entrances facing the same way, when, without knowing the difference, all the flying bees would join the other lot with the wide-open entrance. Although at first the bees fly to the site of their own entrance, they simply draw along to the open side, passing behind the central division of the porch.

ALL MATURE WORKERS JOIN THE SUPERED LOT.

The back entrance of the closed lot is opened after the turn-over, but at first only half an inch or so; but while the remaining adult bees find their way out from there they all return to their old entrance site, and, of course, join the strong supered lot—never, on any occasion, troubling to find their old stock by the new back way. With entrances at each end I should not feel so safe on that point.



SIMMINS' DOUBLE HIVE FOR SHIFTING THE FLYING BEES FROM ONE ENTRANCE TO ANOTHER.

Thus the stock doing all the storing is of unusual strength, while the colony in the other side produces an unusual supply of young bees. In some cases, following supers are presently placed on this all-brood lot and the bees "turned back," when the supers on the former doubled lot are ready for removal, and then such completed combs or supers may be removed already denuded of bees.

The "turn-over" is made about 10 to 11 A.M. on a warm day while the bees are gathering freely. Both lots are first smoked in the usual way when no fighting occurs and the queen is not disturbed by the new comers.

*The "turn-over" method as applied to this double hive is given on page 216, 1904 edition "Modern Bee-farm."

MUTUAL ODOR.

The middle or partition wall of the outer protecting case has two ⅛×4 slits opposite and between the two stock-chambers, and this maintains sufficient communication so that the same odor pervades both stocks — seeing that the chambers do not touch each other or the floor. These slits are arranged so they are never stopped by the bees, which has always been done where the Wells perforated dividing-board has been used between two stocks. I do not say it is imperative that the same odor should permeate both stocks at the busy season, but it is certainly a correct feature in connection with this turn-over plan of uniting.

ALTERNATIVE PLAN — ONLY USUAL ENTRANCE NEEDED.

Another important item with my turn-over method is that it can also be carried out with only the one entrance to each stock; and after the entrance of one stock is closed the latter may be made to supply automatically and continuously the already doubled working force with mature workers without further attention beyond allowing the bees communication through excluder zinc set in the dividing or partition wall.

The closed-in lot, having no direct opening for exit or admission except through the supered lot with its wide-open entrance, will never have its combs clogged with stores; and with a prolific queen during the warm season it will produce a mass of brood and young bees such as few bee-keepers may realize.

VARIATIONS IN UNITING OR DIVIDING; YOU MOVE ONLY AN ENTRANCE-SLIDE.

My double hanging-chamber hive, all within a sheltering or protective case, provides for many variations in uniting or dividing, simply by the action of pushing along one or the other of the usual entrance-slides.

ADVANTAGES.

1. With the hanging chambers the brood-nest is always under control, as the stock-chamber can be withdrawn any time the supers are on, and the latter are not moved.

2. The turn-over, or immediate uniting of the working force of two stocks into one, enables one to take advantage of an early honey-flow.

3. The denuded lot produces more bees because the stock combs can not be crowded with stores, and especially not with an excess of pollen.

4. For late autumn flow the plan is particularly valuable, as one of the two stocks, having no direct entrance, is always draining into the supered lot.

5. In tropical climates where bees can not or will not breed during the best honey-flow because the stock combs are immediately clogged with stores, the closed in side will continue breeding all the time.

6. The union is carried out with no shifting of hives, and no special floor. You just move a slide.

7. In like manner you can turn back the bulk of the workers from the finished supers, in the morning, and, later in the day, the combs are almost clear of bees.

8. No worry about the bees flying to the wrong spot or settling around on other hives.

9. No shaking bees from combs.

10. No need for bee-escapes.

11. No time wasted in clearing supers.

12. By this method of clearing supers no pin holes are made by the bees in the beautiful cappings.

Heathfield, Eng., Nov. 23.

EXTRACTING DURING THE HONEY-FLOW.

Exchanging Combs as Fast as they are Capped with Empty Ones; does Honey Improve with Age?

BY G. C. GREINER.

On p. 375, June 15, 1910, Mr. Southworth makes light of my way of extracting honey, and calls it "dabbling in it at intervals." I am no hand to enjoy long controversies. After I have had my "say" I am generally satisfied; but to bring out a few more facts which Mr. S. overlooks, and explain to others why his article is misleading in a number of points, I will make a short reply to his article above mentioned.

In the first place, Mr. Southworth does not take into consideration that we all must work in our own harness. Each one's environments are so different from every other one's that uniform rules can not be adhered to. What is practicable and advisable for one may not be so for the other. For instance, I run my home apiary and have no outyards. All my time is spent with or near my bees. If I am not actually engaged with them I am busy in my kitchen garden, which joins my bee-yard, or I may be doing some work in my woodshop, which also joins my bee-yard at one end. In this way I am at all times within sight and hearing of my bees. If I had to manage a number of outyards it is very likely that I would have to adopt different plans.

Then Mr. Southworth overlooks the fact that my management produces more and better honey, with less work, than he can get by his tiering-up plan. I admit that a little time may be gained by tiering up at the time when bees need more room for storage; but it isn't nearly as much as Mr. S. imagines. During the course of years that I have practiced extracting before the end of the season, I have learned to take the advantage of every motion I make; and I believe I can make the exchange of four combs nearly as quickly as Mr. S. can place an empty super under a full one. If it should take a little longer, the advantages gained by exchanging would fully overbalance the little time lost. At first sight it may seem like a small matter to exchange four combs. It would be if I used the small half-story

frame. But I use the Jumbo frame, and the four supply as much storage, and, when full, contain as much honey, as Mr. S.'s half-stories which I imagine he uses.

Next, Mr. Southworth must bear in mind that, when I make the exchange, I perform two operations in one. I take honey from the hive and supply storage at the same time, while Mr. S. does only the one, leaving the taking of honey until some future time; and when that future time comes, he has to gather up his two, three, or more supers, as the case may be, take them to his extracting-room, and stand at the extractor, where he has to do at least twice the cranking I do, and then not get his combs as clean as I do mine earlier in the season. And all this time, while Mr. S. is doing this work, I have nothing to do but to take my honey to market and take advantage of the early sales.

The advantages gained by using one super and the exchange of combs are briefly these: Every comb goes direct from the hive to the extractor. It is then in the very best condition to extract the honey cleaner with less turning than would be needed any time thereafter. In the same way the empty combs go direct from the extractor into the supers. They are then also in the most tempting condition for the bees to accept, and, being placed exactly where the full ones were taken from, business goes on without the least interruption. But how is it when Mr. S. places an empty super under the full one? The whole inside of the hive is disarranged; his bees have to hunt up new fields of operation, get acquainted with the new order of things, prepare his stale combs for the reception of honey, etc., and, before his bees are ready to begin storing, my exchanged combs are nearly or quite full of honey again. This is the reason why my management gives me *more* honey.

The question of quality, which the heading of this article suggests, is of the greatest importance to our pursuit. It is the all-absorbing center of attraction from which all arguments of the different advocates radiate. The claim that honey must remain on the hives all summer to ripen perfectly is governed entirely by season and locality. I do not think that honey (at least *my* honey) can possibly improve with old age as do certain kinds of cheese. When honey is capped, whether it be comb or extracted, it is ready for the table; and the sooner it is taken from the hive the better. Why is it that some of my neighbors and customers call for my first-extracted honey? They say, "It has that delicious flavor of newness which it loses when extracted later in the season." As long as my honey comes up to and even overruns the 12-lbs.-to-the-gallon test, it would be unpardonable shortsightedness to let it deteriorate by leaving it on the hives any longer. By doing so it may improve a little in body, but lose in flavor. In all my extracting operations I never had honey ferment or sour. The circle of my customers has grown larger from year to year; and the fact that I can not produce nearly enough to supply the demand is sufficient to prove that my product is up to the standard mark of desirability.

When I made the misleading remark, that I began extracting when my combs were capped "three-quarters or over" I should have given a little explanation, which I omitted at that time for brevity's sake. The facts are, when I have a sufficient number of combs of that description to pay for starting the extractor, many more combs scattered through the hives are then all capped. The progress in my supers, when the white-clover flow is well under way, is so rapid that combs three-quarters capped to-day are all capped inside of 24 hours, so that, by the time I get to them, practically all honey that goes into the extractor is capped.

La Salle, N. Y.

THE WINTER NEST VS. SOLID COMBS OF HONEY.

The Solution of the Problem Depends upon the Locality and on the Time when the Bees go into Winter Quarters.

BY C. P. DADANT.

Seeing my name mentioned in a discussion on "winter nest better than solid combs of honey," pages 65, 66, 67, of GLEANINGS for February 1, I wish to state that, in 1905 and '6, a discussion upon this subject took place between Dr. Miller and myself on one side and J. L, Byer on the other, in the *American Bee Journal*. Both the doctor and myself advised room and dry comb for the bees to cluster upon below the honey, on the center frames. Mr. Byer averred that he wintered bees successfully "on solid sealed combs" (*American Bee Journal*, Feb. 1, 1906, page 99). He referred to Wm. McEvoy as authority for the same thing. Being well acquainted with Mr. McEvoy, having full confidence in his statements, and knowing him to be an experienced bee-keeper, I had the curiosity of writing to him to ascertain what his experience was. He replied along the line mentioned by Mr. Byer, that, since the year 1876, he had been in the habit of crowding his bees "on five, six, and seven combs of all-capped stores." Mr. Byer in his articles had demanded that we make a trial of all capped combs filled from top to bottom, as he used them, before condemning his method. I had never had more than one colony with all capped combs without room to breed, to my knowledge, and it had died, leaving the combs practically all full, so I did not feel like renewing the experiment; but in view of the positive assertions of both of these men, who are certainly bee-keepers of experience, I have concluded that it is possible to winter bees successfully on full sealed combs. Perhaps friend McEvoy will pardon me for sending you his letter to me, dated February 6, 1906. I believe it is worth publishing.

Friend Dadant:—I read all the articles that you, Dr. Miller, and J. L. Byer wrote. In the fall of 1875, with division-boards I crowded half the colonies in my apiary on five *all-capped* combs, so as to shut off brood-rearing till near spring.

The colonies in the other half of the apiary were left with the full sets of combs, and all these had empty space in the center, and plenty of honey to winter on. The winter of 1876 was one of the warmest we ever had; and during that fine weather the queens filled the empty space with eggs and then started far too much brood for the time of the year, and used up more stores than I expected. All these colonies that bred so in winter dwindled down very low in spring, and some of them got robbed out; and those that came into June were not strong enough to gather a fair crop from clover. The other half, that had been crowded on five all-capped combs, wintered finely, and came into spring very strong; and many of these swarmed the last of May, and gave me large yields of clover in that honey season. Of course, that mild winter caused the bees to breed more, break cluster, and wear themselves out caring for so much brood in what should have been their season of rest. I made up my mind never again to let bees have space going into winter which would get larger as the honey was used out of the combs. I have, ever since 1876, with division-boards, crowded my bees on five, six, and seven combs of all-capped stores. When I have not capped combs enough in the supers to fit up all, I put six of the most capped in the brood-chamber, and then fill out the rest of the brood-chamber with division-boards. I then put on a Miller feeder and take the middle off so as to let the bees rush up by wholesale into syrup that is covered with straw. I give the bees all they crowd into the six combs and cap. When the bees can not put any more in these combs they start building comb up in the feeder. I then put a Porter bee-escape under the feeder: and when they are down (a place they soon leave) I move the feeder to another hive.

I pack with four inches of maple leaves on the sides. I pull the cloth forward so as to leave one inch wide of the queen-excluder uncovered so as to let the steam up off the bees. I put four inches of leaves on the top so as not to let too much heat up through the part of the queen-excluder that the cloth does not cover. I then place the hive-cover on top of the leaves and over all I put the cover of the winter case. The entrance of my hive is ⅜ by 3 inches, and I keep the snow away from it all winter. In the winter of 1904 all the bees in the Province of Ontario that were wintered on the summer stands had a hard time of it, and many lost all. Many came a long distance to see my apiary in the spring, and were surprised to see my colonies in grand condition after such a winter.

Crowding the bees on all-capped stores and letting the steam up off the bees and keeping the snow away from the entrance at all times saved every one of my stocks in the hardest winter ever known on bees.

Woodburn, Ont., Feb. 6, 1906. WM. MCEVOY.

Now do not let your readers infer that I believe it is necessary for us to follow the same method in our latitude. I still advise what we recommend in "The Hive and Honey-bee," that the combs be "at least half full of honey."

I believe that latitude, length of winter, etc., have a great deal to do with success under different kinds of managements. The Canadians place their bees in winter quarters earlier than we do; they need more feed for the same length of time, and their bees begin to eat off the stores in the center earlier than ours, for they have fewer warm days in the late fall. I believe if conditions of the cluster were compared about the first of January they would be found in much the same condition as ours, with a certain amount of dry combs on which to cluster at the bottom of the center frames. In other particulars McEvoy's method is exactly according to my views, narrowing the colony to the most compact space and allowing the moisture to escape in a porous ceiling without deperdition of heat.

This discussion shows once more that we must not condemn others who find themselves in different conditions and come to different conclusions. The first human beings who said that not only the sun and the moon but all the stars had been made for our own special benefit, did not know that there are "other worlds than ours," and that other beings may also imagine that our earth exists only for their own special benefit.

Hamilton, Ill.

THE WINTER NEST VS. SOLID COMBS OF HONEY.

A Cold Climate makes Necessary a Large Amount of Honey Above the Cluster.

BY J. E. HAND.

I note by the Feb. 1st number of GLEANINGS that the subject of the desirability of a winter nest is again open for discussion: therefore, with your permission, I will endeavor to present my views concerning this mooted question with the hope of arriving at something approaching a definite solution of this important branch of the wintering problem. After giving the subject due consideration I am persuaded that, if the discussion with reference to the merits and demerits of a winter nest were conducted along purely isothermal lines, the difference of opinion would not be sufficient to awaken any thing approaching a lively discussion.

An experience covering a period of twenty years in outdoor wintering of bees in the latitude of Northern Ohio has led me to conclude that a winter nest, if not too large, is a comparatively safe proposition where the colony is well protected. On the other hand, an experience of thirteen years in outdoor wintering in North-Central Iowa, where the theremometer frequently registers as low as 20°, and often remains below zero for days at a time, has taught me the wisdom of having an abundance of sealed stores above the winter cluster; in such a location the condition of the comb shown in the illustration on page 19 might mean that there was only about two inches of honey between the colony and starvation; for, just so surely as the bees consume that two inches of honey, and arrive at the top-bar of the frames during a spell of zero weather, just so surely is that colony doomed. At least, this has been my dearly bought experience.

No amount of argument could convince one who has lost scores of colonies from starvation in the midst of plenty, under conditions as above described, that a liberal-sized winter nest is a desirable proposition in a cold climate. The fact that bees will usually winter well in a mild climate like Central Ohio, in spite of the presence of empty

combs for a winter nest, should not be regarded as evidence that a winter nest is necessary or even desirable.

An important point that has been entirely overlooked in this discussion is that, if room is provided for the bees to cluster under the combs, they will invariably cluster there at the beginning of winter, irrespective of whether or not they have an empty brood-nest above—proving quite conclusively that they choose such a condition in preference to empty combs in a winter nest.

Our feeder consists of a pan eight inches wide by the inside length of the hive, and two inches deep—said pan occupying a central position from front to back inside of a rim three inches deep, and affords protection against chilling blasts from the hive-entrance. We have found that, whenever a feeder is left under a hive until the approach of winter, the bees will invariably be found snugly clustered down below the combs and into the feeder pan; and frequently, when tipping a hive up and glancing underneath, we have caught a glimpse of the queen. This set us to thinking as well as to experimenting, with the result that we now consider that, for wintering outdoors in a cold climate like that of Iowa, Minnesota, or Canada, solid combs of sealed stores early in the season, with a clustering-space under the combs, protected as above described, is a safe proposition. For this reason our feeders are left under hives that are wintered outdoors.

Birmingham, O., Feb. 4.

[In all the discussion that has followed in these columns, and in the *American Bee Journal* also, we have seen nothing thus far that does not argue in favor of one solid ball of bees *not* broken up by combs of sealed stores. We care not where the clustering-space may be, whether it be in empty cells below sealed honey, or whether it be below the brood-frames in the space between the bottom-bars and the bottom-board, for the bees seem to show a desire to get together where they can make up a cluster as near a solid mass as possible.

On the other hand, we are quite prepared to admit that, in a very cold climate, or a climate subject to severe prolonged cold, empty space or empty cells, occupying as much as the lower half or lower third of the central combs may be a positive detriment rather than an advantage. The reason for this is very clearly pointed out by Mr. McEvoy in his letter to Mr. Dadant; but apparently Mr. McEvoy and all the others who argue for solid combs give solid combs of stores *early in the fall*. By the time real cold midwinter comes on, those bees will have empty cells in which they may cluster below the honey.

Again, it may be an advantage to have a larger clustering-space under the brood-frames than has ordinarily been allowed for outdoor-wintered colonies. Mr. Hand makes quite a good point in favor of his underhive feeders; but this all argues for a clustering-space not broken up by solid combs. That is what we have contended for, first, last, and all the time. We naturally would think, then, that our Canadian friends, with their longer and colder climate, would need more space under the frames than is usually provided by an ordinary bottom-board.

As Mr. Dadant points out, this is somewhat a question of locality. In Canada and these other colder climates, less of a clustering-space than we have shown in GLEANINGS would be desirable. The milder the climate, the larger this clustering-space may be without detriment.

Now, then, if there is a single one of our friends who believes that it is an ideal condition to have a cluster of bees broken up by solid combs of honey above bottom-bars, and away from the bottom-board, we wish he would show his hand. This general discussion shows that, so far from disagreeing, we are really in accord when we properly understand each other and our localities.—ED.]

HOW I SELL MY HONEY AT A GOOD PRICE.

BY J. A. M'GOWAN.

First, I have all sections nice and clean, and I take care that they weigh from 13 to 14 ounces. That means a plain section must be full on both sides.

Second, I make it a rule to advertise my honey by giving away two sections to any one who I think might become a buyer. To illustrate, a friend of mine from Pittsburgh was out attending a reunion of his family in our town, and I told him to stop and see me as he went by, as I had a present for him. I gave him two sections of buckwheat honey, and in less than ten days I had an order from him for all my honey at 20 cts. a section. This was one year ago. This fall he wrote me again, wanting all I had at the same price.

Third, I make sure that the cappings look white; and in order to have it that way I remove all sections as fast as capped over, and replace with new ones containing foundation. By doing this I need only two supers at the very most, and the bees are never scattered through from three to six supers. Unfinished sections are also largely prevented.

Fourth, as soon as I have honey completed I hunt for a buyer, as it never looks better than theday it is taken from the super, and looks go a great way in disposing of a crop. And I am careful to have my honey just what I say it is.

Fifth, in order to have the very best-looking honey and the best tasting as well, I have colonies so strong that, when the flow comes (and it always does) I am prepared to get my share of it. One or two days' neglect of little details may lose a season's crop.

Prospect, Pa.

E. D. TOWNSEND'S PORTABLE EXTRACTING-HOUSES AND PINE LAKE OUTYARD.

BEE-KEEPING FOR BEGINNERS, ILLUSTRATED.

Portable Extracting-houses; How Made and Used.

BY E. D. TOWNSEND.

Our extracting-houses for outyards are built in sections. The floor (12 × 16 ft.) is in two parts; the sides and ends and each side of the roof are separate. Built in this way a team can draw the whole building at one load on a flat rack.

The material that we use, for the most part, is hemlock, although some of our houses are built of white pine. We decidedly prefer the latter, as it works nice and is very light. A material both durable and light should be selected for this purpose when possible.

The foundation is built of 2 × 6's placed 16 inches from center to center, the planed and matched bee-tight floor being laid on them. The frame of the foundation is of the same material, and is spiked to the ends of the 2x6 in. joists. When setting up the foundation, solid underpinnings are used, three at each side, one in the middle at both ends, and one in the center of the floor. We build each section of this foundation about 8 × 12 ft. and run the sleepers the short way. Properly underpinned, the floor thus built is very solid, and free from jar.

The foundation, when in place, is one inch smaller each way than the building. This allows for some "play" in squaring up the structure, but is of value more particularly to allow the siding to extend down below the floor an inch or so to keep the water from running in.

The sides are 6 × 16 ft., and the 6-ft. posts of the sides and ends of the building are so placed that the two 2 × 4's used for posts at each corner (one 2 × 4 being a part of the side and the other of the end) come flat sides together, and are securely bolted, as shown in Fig. 2. The framework above the foundation is of 2 × 4's, planed down rather thin for convenience in moving. The siding is put on up and down, and may be matched

ORCHARD AND APIARY OF C. E. LAYMAN, TROUTVILLE, VA.

Mr. Layman figures that his bees pay him as well in the extra amount of fruit that they enable him to get as they do in honey.

or not. When the planing is done under our instructions the siding and roof boards are ¾ inch thick.

Fig. 1 shows the sliding shop-window, which needs but little explanation. Between the plate at the top of the side section and the girt running parallel to it, about 26 inches below, the opening for the window is left. This is covered with wire cloth on the outside, and just a plain board sliding window is used inside, no glass being needed. We keep making these windows larger and larger, our last one being between 5 and 6 feet long. They are located a little in front of the center of the building, as this is where most of the work is done.

We have used both shingles and felt for the roof. The latter material is lighter and more easily moved, and in most cases preferable, though it may be more expensive in the end. Each side of the roof, as mentioned before, is separate, and is about 8×17 ft. in size. The two parts of the roof are the heaviest pieces to handle, and we are thinking of having the roof of our next building in four pieces for convenience.

All of our extracting-houses are bee-tight, made so by the use of tar paper put on with lath in such good shape that not a bee can get in. It is difficult to get a carpenter who will do this work and be particular enough to crowd every lath snugly into the corners so bees can neither get in nor out. The siding between the frames, and the roof boards between the rafters, are all papered; and the floor, being planed and matched, renders the whole building tight. We have one of these portable houses at each of our yards, and consider them indispensable.

Figs. 3 and 4 in the engraving show our Pine Lake yard, located three-fourths of a mile south of Remus, and we call this our home yard, as it is the nearest. It is located in a "nick" of the woods open to the south, and is fairly well protected from prevailing winds. Before the fire of 1908, which burned much of the timber near this yard, it was an ideally protected location. If the reader will turn to Fig. 3 he will see a tree leaning slightly toward the bee-yard. This stands close to a low swampy piece of ground, affording water to the bees during April and May, so that at times they do not have to go more than three rods for water in a protected place where they can carry water for breeding on days when it would be suicidal for them to venture out in the wind.

Only half the advantages of outside pro-

tection of bees during the months of April and May have been told. It makes very nearly the whole difference between failure and success in the surplus crop of honey.

Remus, Mich.

BEES ESSENTIAL IN AN ORCHARD.

Blossom-spraying Bad Policy, even from a Fruit-grower's Standpoint.

BY C. E. LAYMAN.

As I have read a great deal in GLEANINGS for and against bees with fruit-growing, I decided to send a photo of my apiary, located on one side of my orchard. I have been raising bees and fruit together for twenty years, and have never had any bad results from the bees bothering around the fruit except after a rain, which bursts open the ripe grapes so the bees can get at them. I have noticed frequently that, while others in this section were having no fruit (or very rough if any at all), I would have a fairly good crop of nice smooth fruit, and I am, therefore, of the opinion that the bees do a great deal more good in the way of fertilizing and making perfect fruit than they do harm to the fruit that has already been spoiled by rains or some insect puncturing it.

I have also had a great deal of experience in the spraying of fruit, and have watched some of my neighbors frequently who persisted in spraying while the trees were in bloom, and in nearly every instance their fruit was damaged more or less, while my trees, which had not been sprayed until after the bloom dropped, were full of perfect fruit. There can not be any doubt about this point in my mind, as it has been so thoroughly demonstrated in this section.

I note much complaint has been made by some fruit-growers claiming that the bees bothered them a great deal in the picking of fruit. I am sure that the bees get more blame than they are entitled to along this line, as in all of my experience I have never had any trouble worth mentioning. Some, if they find a bee or two on fruit, would be afraid to go near the tree. What is necessary for a fruit-grower is to keep his fruit picked as it ripens, and keep the fruit that is beginning to decay off the trees, and there will be no trouble with bees. I figure that my bees pay me as well in the good they do me in my orchard as they do in honey and increase secured from them.

Troutville, Va.

BEAUTIFYING THE APIARY.

BY W. A. PRYAL.

Too often our apiaries are any thing but objects of beauty; but we should strive to make the home apiary, at least, one of the most attractive spots on the premises. I remember seeing an apiary on a hillside in one of the counties of California that, though certainly not in apple-pie order, yet had a most picturesque appearance.

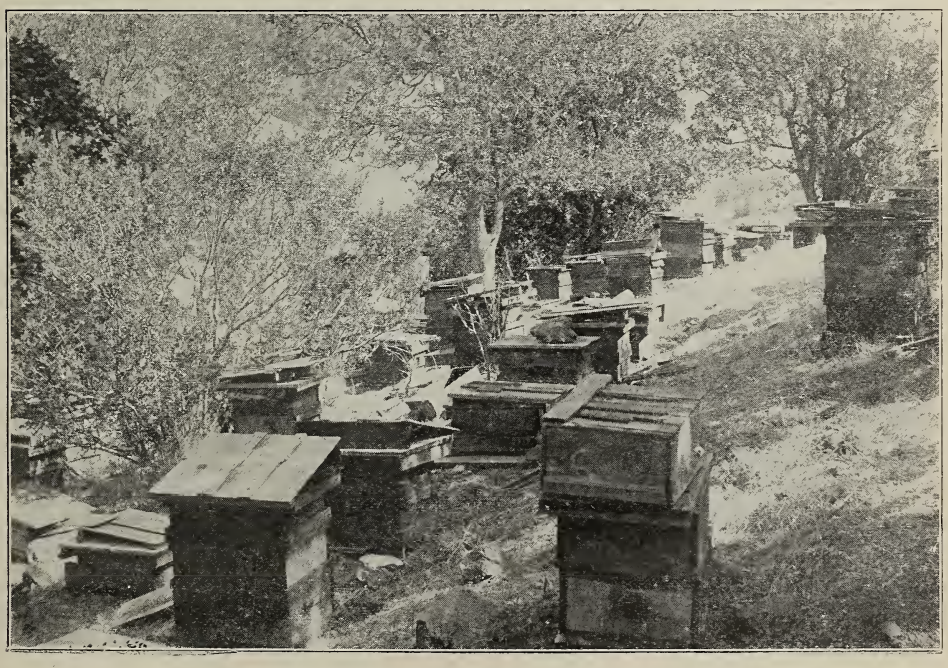


FIG. 1.—HILLSIDE APIARY IN CALIFORNIA.

In Fig. 1 I present a view of this apiary. It is not necessary to point out its ill-kept appearance; still I doubt if a more artistic-looking apiary was ever figured in GLEANINGS. Most of the hives are home-made, of rough California redwood, and innocent of paint or other ornamentation.

While vines are splendid for adding ornament to an apiary, there are times when vines, shrubbery, and buildings will be improved from a landscape viewpoint by the addition of a couple of hives, as in Fig. 2. The hives shown are not the usual store or ready-made ones, but home-made, and were built for an apiary run for extracted honey.

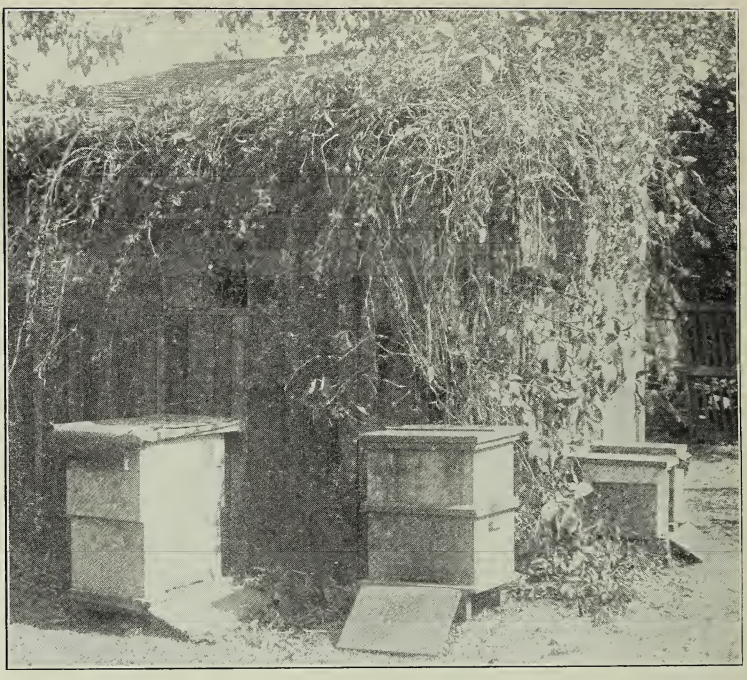


FIG. 2.—BEE-HIVES NEVER DETRACT FROM THE APPEARANCE OF SURROUNDING PREMISES.

The next three half-tones show the gradual adornment of the buildings in the background of a certain apiary I am acquainted with. For many years a rather make-shift extracting "room" was used by the owner of this bee-yard. It was not one of those large apiaries as we are wont to find them in many parts of California, especially in the southern portion of the State, but was or is what might be called a farm-apiary, as the place where these bees are kept is farm, garden, orchard, and apiary in one. The construction of this honey-extracting room was very simple. It was about 10×8 feet, and seven or eight feet high. Two uprights of 2×3 scantling were used for the corners. For a foot or so near the ground it was boarded around, that the cloth wall might not come in contact with the earth or receive the splashings of the rain when it would strike the soil. Common muslin was tacked on the three sides, except that in one end was a screen-door which was kept closed

FIG. 3.—IMPROVING THE APPEARANCE OF AN APIARY.

by a coiled spring. A piece of tin from an old roof was thrown on top to keep out the rain from above, and also to carry off the drip from the roof of the attached building.

This make-shift did good service for a number of years, as stated. But a room was wanted that was more secure, and where the whole extracting-outfit could be left during winter. This was provided for as shown in Fig. 4. It is of T. & G. lumber with a good floor and roof, the latter being one of those tar-paper-and-burlap "patents" as manufactured near where this apiary is located. A coat of hot tar is applied to this roof every two years, and it is as good to-day as it was the year it was laid. Two sliding windows admit light and provide ventilation.

FIG. 4.—NEW EXTRACTING-SHED AND VINES PLANTED.

Having thus improved this part of the aspect of the apiary, the owner wanted to soften some of the other ugly features thereof. He took a crowbar and jammed two holes into the ground and inserted a tall eucalyptus pole in each. These holes were about eight feet apart. A piece of wood was nailed across at the bottom or near the ground, and another piece was likewise fastened well toward the top. Then a piece of poultry-netting was stretched upon the frame thus made. Virginia creepers were set out and soon covered the wire, as shown in Fig. 5. In this way this little apiary has been made to look quite presentable. To the left of the extracting-room is an English walnut which completely shades the greater part of the building during summer. On the opposite side of the building, and some twenty feet away, is a big fig-tree which extends some of its branches over a portion of the adjoining as well as the detached outhouses.

FIG. 5.—THE RESULT, AN ARTISTIC VIEW.

At one end of this apiary are a few orange-trees, and at the other are cherry-trees, while in front are some apricots. Thus the apiary is nicely located, and more or less shade is provided.

Here I should like to state that the Virginia creeper is an excellent vine to use for shade and ornament about the apiary. I like it better than grapevines, although the latter is also very good. The former is more beautiful, especially in the fall. In Fig. 2 the vines have lost about all their leaves, while in Fig. 5 they are in dense leafage.

Oakland, Cal.

Fig. VI.—A view in the apiary of Mr. Shoemaker, Cuerna Vaca, Mex., incidentally showing one of his Mexican helpers with a swarm he had just brought down from the tree-tops.

BEE-KEEPING IN THE HIGHLANDS OF MEXICO.

BY O. B. METCALFE.

Continued from last issue, page 105.

In our last article we had reached Mexico City. Now we drop down further south to the Cuerna Vaca region and take up the consideration of a most interesting apiary owned by a Mr. Shoemaker, who has had it for some six years. He once intended to make a big business of it, and might have done so except for lack of skilled labor. He complains that he has much trouble to get good help for the business. This apiary is the old original Carl Ludloff & Co. apiary which was moved over from Mexico City, and Fig. VII. shows a hive which was a transitional hive between the old hive he made at the city and the one he is now using at Irapuato, and which will be shown in a later article. This Cuerna Vaca apiary has been the scene of many trials and many experiments. In some way Mr. Ludloff finally dropped out of the company, and another member took the wheel and tried to make a go of the business. At last he sold to Mr. Shoemaker, who increased the yard to some 500 colonies, and decreased the size of most of the old Ludloff hives to about half the length. Among other experiments, Mr. Shoemaker bought twenty standard ten-frame American hives with shallow-frame extracting-supers. He says that, so far as he can see, bees do as well in the American hive as in any other; but he raised two objections to them. First, duty, freight, and all, they cost too much; second, the bees glue them up so badly with propolis that they are harder to work. However, I could not see that they gathered more propolis than they do in New Mexico; and I think that, if he had been well versed on the use of the standard American hive in his locality of Mexico he would have found it ahead of the Ludloff type to which he has gone back.

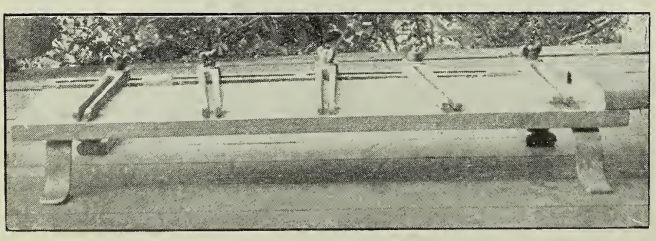


Fig. 1.—Smith's foundation-cutter, with movable guides that may be set for any size of starter desired.

During the swarming season Mr. Shoemaker keeps two men to hive swarms. This is usually during June, and the bees swarm fast and furiously then. He claims that he could make a lot more honey if he could control swarming, for some of the strong colonies that do not swarm produce as much as 285 lbs., while his av-

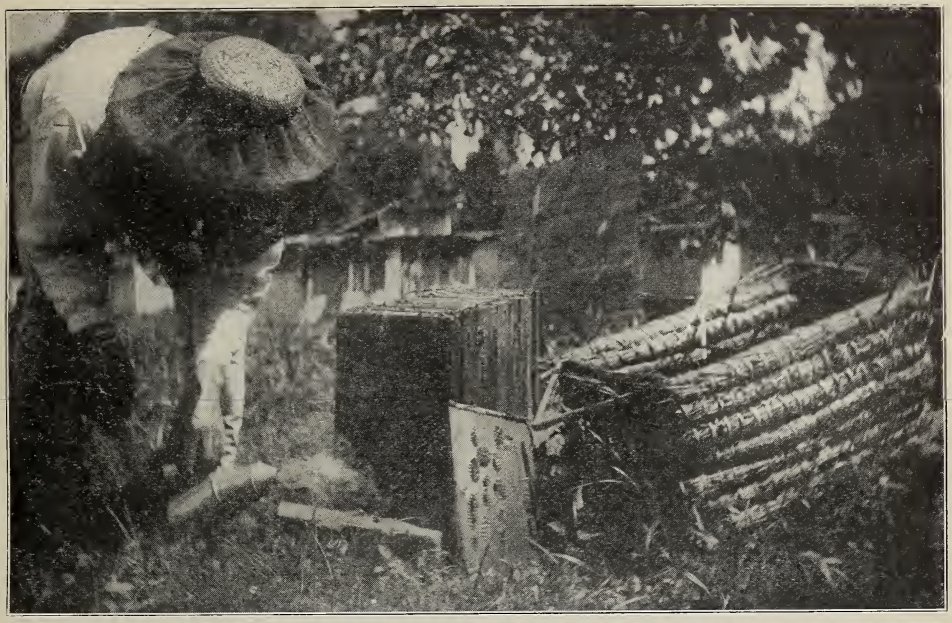


Fig. VII.—One of the transitional hives which Mr. Ludloff made and used between the first he made and the perfected Simplex hive he is now putting out.

erage is about 35 lbs. Right there is the point where I think he would do much better with the American hive if he had ever had experience with it and would use foundation; for since he does not produce comb honey he ought to be able to control swarming with his ten-frame American hives.

At Cuerna Vaca the bees store a little honey in March; but the main flow comes in October and November. Mr. Shoemaker thinks that the honey is made mostly from fruit-bloom, and colored a bright amber from a small yellow weed which comes up thick in the stubble. He was kind enough to let me taste the honey, and to give me a small sample to bring home. The honey was excellent, and should create a demand; but one of the strange facts that I learned from him was that from this one apiary he supplied the city, and all the towns up the old Mexican Central as far as Aguas Calientes; and after quoting it all up the Mexican National also to all points as far as Monterey, he still has to export to Germany the better part of his crop. The exported honey nets him about 10 cts. Parties come right to his house and beg for the wax at a dollar (50 cts.) a pound.

On south of Cuerna Vaca it seems that the natives keep quite a few bees; but the honey is mostly from the casachuate-tree, and is not edible. It is a clear white honey, but causes severe headaches. Bees also collect syrup from sugar-cane in this region.

Still further south and east, in the state of Oaxaca, the natives also keep a good many bees, and they use the honey a good deal. Perhaps considerable of the honey is made from alfalfa, for there is a good deal of it in cultivation in that section, and it is said to do exceptionally well there. While in Mexico City I had the good fortune to meet an Oaxaca Indian lady who had had some experience with bees in the Oaxaca Valley. She was the wife of an American;

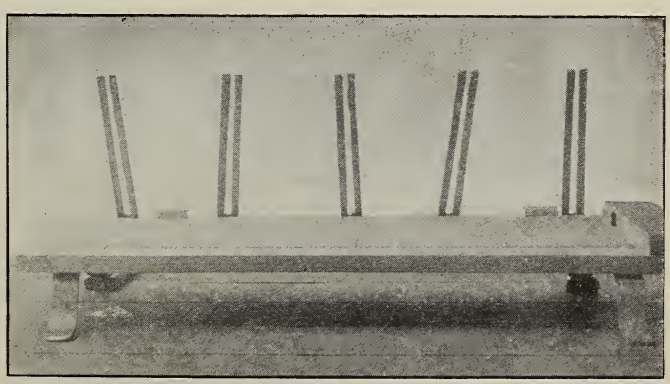
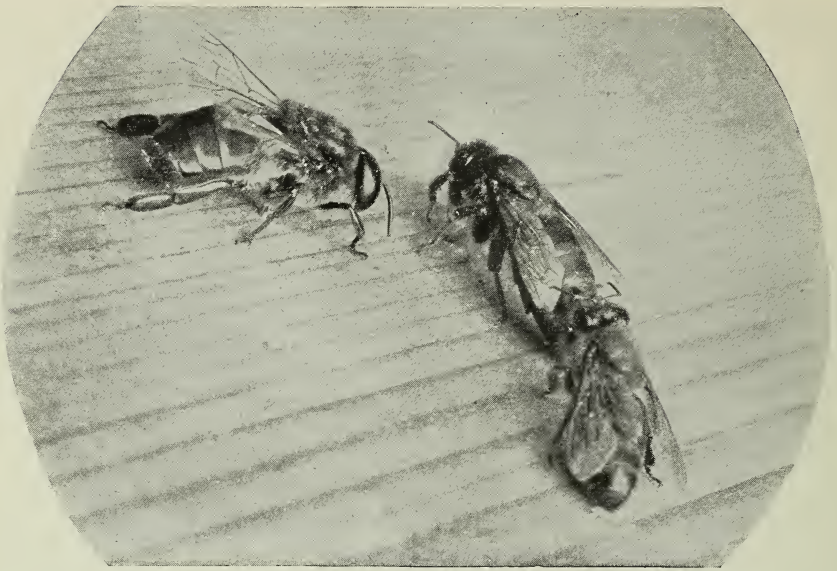


Fig. 2.—The guides thrown back so the foundation can be removed. See next page.



DRONE, QUEEN, AND WORKER.

—Photographed by Dr. Bruennich.

and, while she did not speak English, she had many of the English ways of looking at a proposition, and I had a very interesting talk with her in Spanish. According to her the bees make a dark honey at Oaxaca, but it can be eaten, and the bees are kept for honey as well as wax. The bees were kept mostly in box hives without the extra box as a super, and she thought that an average yield would not be over fifty or sixty pounds. She spoke of two kinds of bees—the common honey-bee and a native bee which stings very little, and which lives in the ground, but stores quite a quantity of honey which is about like that of the common bee in that locality.

Mesilla Park, New Mexico.

AN ADJUSTABLE FOUNDATION-CUTTER.

BY JAY SMITH.

Ever since I went into the bee business I have been looking for a satisfactory device for cutting foundation. When one has a lot to cut, time is an important factor: then, may be, there is a sudden rush of nectar when it is necessary for all hands to rush accordingly. A miter-box has been usually recommended. This does very well, but has its disadvantages. In the first place, each miter-box will cut only one size of foundation, and it is, therefore, necessary to make a box for each size wanted. Then no doubt there are many bee-keepers, like myself, who are not handy with carpenter tools, and make a bad job of it. My father-in-law, Mr. Frey, made a miter-box for me; and when I wanted another he suggested that he could make a machine that would be adjustable. He went to work on it, and the accompanying cuts show the result. We have used this a good deal, and find it all that one could wish. The arms may be changed in an instant to any shape desired.

I prefer a bottom starter and full sheets of foundation; but the principal objection to full sheets in the 4×5 section is, if they are cut square they are apt to touch the side; and when the bees fasten this to the side it will swing around and become fastened to the fence, thereby spoiling a good section. The remedy is to cut them slightly tapering. The arms of the cutter are set in that shape in the cut.

Any number of sheets can be cut at a time. When cutting a number it is necessary to place washers on the bolts that hold the arms so as to raise them up the thickness of the foundation to be cut.

Vincennes, Ind.

BEE-KEEPING AS A HOBBY.

The Bee People.

BY F. DUNDAS TODD.

Chapter IV.

When Pope wrote that "The proper study of mankind is man" we can not suppose he meant mankind should learn the ways of individual men, for, taken severally, they are usually most uninteresting, their ways and thoughts being pretty much like those of their associates. He doubtless meant that the proper study of individual men is

the form of society of which they are a part, and this is fascinating. It is the same with bees. Collectively they are a wonderland of delight; but individually they are much like men; nevertheless we must devote a little time to the various kinds to be found in a hive.

THE WORKERS.

Any clear bright day when the thermometer registers 48° or above, and on dull days in warm weather, we can see myriads popping out of the hive entrance, or dropping heavily as if laden and tired on the bottom-board, then scurrying hastily into the little doorway as if there was much to do and very little time in which to do it. On a fine day we may watch them for hours at a time, but never once will there seem to be any pause in their flight until the evening shades set in; and so it has been since the earliest dawn. In warm April days one may be able to time them with a watch, say thirty a minute; but toward the end of the month they will be nearer the century mark, and from May until fall it will be utterly impossible even to approximate the rate at which they come. Truly they are hustlers, the very spirit of industry without any play. Seemingly in the bee world competition is not necessary as an incentive to work. Coöperation is apparently sufficient.

Through the livelong day it would seem as if all the bees we saw were exact duplicates of each other, absolutely indistinguishable together or apart; but as our eyes become familiar with them we see that many are of a lighter color, and more downy than others — have the bloom of youth upon them, while others are faded, dark, and almost greasy looking. Yes, it is youth and old age — youth with alert ways and fresh looks; age with sedate step and haggard appearance, worn out in a few weeks of rushing toil. One and all they are the workers of the social organism, the producers, the creators of its wealth, and, let it be said, equal sharers of the bounty.

THE DRONES.

In the merry month of May and all through the joyous summer time we may see some big sturdy fellows emerge from the hive at more leisurely pace, flying upward with a louder noise—a regular drone, in fact —and, after soaring around our head a few times, start off as if on most important business. The timid novice who has just gained courage enough to stand near a hive is apt to be startled when this noisy blusterer appears; but there is no need to worry in the least, as this kind of bee is harmless so far as stinging is concerned. He is the drone, the possible father of a new generation of bees; utterly useless in production, he is a necessity in reproduction, at least of workers; but he is of no value in the defense of the precious food supply. He is a poor male creature, and nothing more. He is tolerated by the workers as a necessity while the possible need exists. The reproductive season past, he is driven from the hive without mercy and without hope. His life may be a merry and care-free one; but the end is always a tragedy.

THE QUEEN.

Once the novice attains the dignity of examining the interior of a hive and holding up frames for inspection he will be greatly astonished at the immensity of its population — thousands upon thousands of bees on every frame, seemingly all in active commotion — workers, every one. But, no! there's a drone, and there, and there. Then if one is lucky he may catch a glimpse of another kind — one with the pointed abdomen of a worker but ever so much bigger. Yes, that's the queen — no, not the ruler of the hive, though she was long supposed to be such; in fact, so far as we know there is no ruler of any kind in a bee-hive. She is the mother of the colony, a wonderful egg-laying device, said to be able to lay from two thousand to four thousand eggs in twenty-four hours, and, when necessary, in May, keep up this gait for days at a time. It is computed she can lay twice her own weight in eggs every day when at her full laying capacity. She gathers no honey, she nurses no babies, she supervises nothing. Her sole business is to lay eggs when and where the worker bees want them. They determine the family developments, she obeys their behests. All problems of sex seem to be within their control, so they decide the relative proportions of males and females in the next generation, and the mother comports herself accordingly. Queens are fertile females; worker bees are of the same sex, but sterile, being incapable of sex relations with the males; but the worker bees control, from the moment the egg is laid, the development of the reproductive organs of the females.

AN ALL-INCLUSIVE GENERALIZATION.

In the preceding chapter we saw that the general structure of bee society is remarkably like that of human beings. We learned that property is the bond of union, and that it is held in common. We have now learned that the administration of the hive is controlled by all the workers, the owners in common. We are now in position to conclude our comparison of the social organization of bees and men by one sweeping generalization that may be startling to some. Government is a function of capital. It would appear to be a natural law on this earth that the formation of society is due to the necessity of protecting property — that is, something on which labor has been expended, and, no matter what the form of society, whether communistic or competitive, the actual administration of affairs will be conducted by the owners of the capital. The nominal form of government among men is of little moment. The difference between an absolute monarchy and a republic consists chiefly in this: the one persists where land is the preponderating source of wealth; the other, where commerce is more

important. In the one the big land-owners are the actual rulers; in the other, the big capitalists.

THE LIFE HISTORY OF THE BEE.

Since bees are insects, their life history is the same as that of other members of that great division of the animal kingdom. First, there is the egg, from which emerges the larva or grub, which, after a period of voracious feeding, passes into the chrysalis stage. In due time it develops into the perfect insect, making its entry into the bee world in full size, and in almost complete possession of its ultimate capabilities. The worker bees take part in the routine work of the hive in about twenty-four hours; but the queen and drones need several days before they are sufficiently developed for their special mission.

The rate of development from egg to insect is not the same for worker, queen, and drone. In the case of the worker the necessary period is twenty-one days; for the drone, twenty-four days; but the queen hastens through the change in from fifteen to seventeen days. When but a few days old she mates with a drone in the air during what is known as the nuptial flight, after which she never leaves the hive excepting with a swarm, when she accompanies the bees to their new home, where she resumes her duty of egg-laying. One impregnation from the drone is sufficient for her life, which may continue for several years.

The most remarkable feature in the life history of the bee is the control the queen apparently has over the sex of her progeny. As the egg passes to the exit she may or may not permit a sperm to join it. The eggs that are fertilized develop into females; those not impregnated produce males, so that drones have no male parent. The progeny of a queen bee that has not been mated will consist of drones only.

The worker bees determine the development of the fertilized eggs. After the larvæ hatch out, all are fed alike for three days, then those intended for workers are given less nourishing food, thus hindering the growth of the sex organs. The larvæ destined to be mother bees are lavishly fed throughout with highly nourishing food. Some day human beings will come to know as much as bees do now, and then they will not expect fine children from underfed parents. The family may be the crowning glory of our civilization; but as a means of producing well-nourished children it falls far behind a bee-hive.

It is at present held as a pious opinion, but not proven, that the queen has direct control over the sex of her progeny. We have seen that the administration of the hive is in the control of the workers, since ownership is vested in them in common; that their power includes determining the sex qualifications of the females. Is it not possible that the decision of sex is also within their province? We have seen that government in society is fixed by a natural law, that it is apparently all-inclusive, therefore one may be pardoned for doubting that sex distinction is beyond their control when the degree of qualification of one sex is within it.

All eggs are laid in cells in the combs. Worker-cells are the smallest, usually numbering twenty-five to the square inch: drone-cells are considerably larger, averaging sixteen to the square inch. Both kinds are horizontal. Queen-cells are unique in shape and position, being decidedly large, and are hung perpendicularly on the combs. Both worker and drone cells are also used as storage combs for honey and pollen when occasion demands.

Victoria, B. C.

A NATIONAL HONEY-ADVERTISING CAMPAIGN.

A Proposed Plan for Increasing the Consumption and Uplifting the Prices of Honey; the Value of Systematic Advertising.

BY F. B. CAVANAGH.

Indiana bee-keepers have proven themselves up to date by appointing at their State convention a committee to promote a system for a national advertising campaign. The committee has not reported as yet, but will confer with the several associations for advice, approval, and support.

Advertising has become an essential factor in our great nation's welfare—so much so that it is impossible to achieve success in the sale of any product without it in some form or other. It is a safe and sane method of telling the public what we have to sell; where it is, and how good it is. The house-to-house canvass is good education for the few, but it will never reach the millions, much less convince them of the merits of honey, nor persuade them to order by mail as would national advertising. The world is alert to the possibilities of advertising, and the door of success is open to the judicious advertiser. It is the modern business method.

Notice, for instance, the different lumber associations that are spending hundreds of thousands of dollars in display advertising. They are certainly securing results or they would not continue in the enterprise.

Honey is produced from one end of this broad land to the other, both in quantity and quality. It should be an article of universal diet; and the only thing lacking to make it such is sufficient forceful display advertising, properly followed up with a *uniform* grade of choice honey. Bees and honey offer rare opportunities to excite human interest. Notice the effect of the caged-bee demonstrator at the fair. Think of the talking qualities of the delicate honeycomb, delicious nectar gathered by the busy worker from the fragrant flowers. "How doth the busy little bee?" and so forth. And then it is all strictly true; and how the world loves an advertisement which rings

true! Science has augmented the word picture with that of the camera wherewith we are able to stand at work handling bees, extracting and packing our honey in the full gaze of the astonished and admiring public should we but choose to enter the field of national advertising. The leading magazines offer possibilities not found elsewhere in reaching the right class of people; and when bee-keepers once awake to their possibilities of advertising and *act*, the glucose trust will have received the hardest blow of its history.

A few bee-keepers and honey-dealers have openly contended that honey could not be sold at an advance over the present prices. "The people would not eat it," they say, "because it is considered a luxury," which statement alone is sufficient proof that an advertising campaign is necessary to educate people in demanding honey as a daily ration and a luxury as well. On the other hand, we need not increase the price to the consumer. They are paying now in the cities an average of 20 to 25 cts. per pound for extracted honey, and we can market it for less by direct means. Some are complaining because the honey jobber buys low-priced honey and sells low-priced bottled goods. Bee-keepers often produce a high-grade article, which, through lack of a knowledge of advertising, they are unable to market at any thing but a low price. If a man fails in the quantity of production he has done no injury to his neighbor; but if he fails to make a proper sale he has injured the market to a certain extent for his brother bee-keeper. The question is, will it not pay us to employ the assistance of an expert to help the producer out in the work with which he is entirely unfamiliar? If we get this class of bee-keepers into the association, thereby controlling the supply, and at the same time creating a greater demand, we shall force both wholesale and retail prices to a proper level with other commodities.

Did you ever stop to think that the American people have shown by their actions during the past years that they are more than willing to pay for the increased cost due to advertising if the advertiser will only give them reliable quality, purity, and service? Practically every manufacturer under the sun has taken advantage of the plan, and is growing rich thereby—excepting the bee-keeper—and he hasn't waked up yet.

The plan I have in mind is a broad one, requiring the support of and benefiting the bee-keepers all over the United States. A central office should be located in one or two of the largest cities in the country for the purpose of getting out advertising matter and pulling orders from the inquiries received. The central office should be under the control of an expert advertising man, and an expert bee and honey man for reasons obvious to all. Sales would be made from the office, and orders shipped direct from the member's apiary, treating all members in equity. A schedule of prices should be in force for retail grocer, jobbing and wholesale trade, and for manufacturers' grades of honey for the various locations.

A SYSTEM TO SECURE UNIFORM QUALITY.

One necessity is that we offer only a uniformly high grade of honey. Without this requirement we should only waste our money in advertising. I would suggest that we use our registered trademark of quality, and that each member be required to furnish the association with a large sample of each grade; also that every member be held legally responsible to furnish honey which is equal to the sample in every respect. No doubt there would be better ways which others will think of to accomplish the end sought, without objection on the part of the member.

Quality in honey is characterized, as all are aware, by many other factors than the source from which it was gathered. The new system should *demand* an article of proper body or specific gravity—one which is well strained, and with flavor, color, and cleanliness all taken into consideration. Lastly, the cases would have to be nailed properly before shipping, and a uniform system of straining and settling adopted. I believe that extensive producers are already realizing as never before the utility of having large storage-tanks for use in extracting time; for not only can a more uniform and cleaner grade of honey be produced, but a material saving of labor be effected by their use.

As different localities have acquired different tastes for honeys it would be necessary for the central offices to be intimately acquainted with these conditions throughout the country, so that white honey would be offered to those accustomed to the taste of such, and the stronger amber honey placed where it is preferred.

The association would have to be reimbursed by some definite system—perhaps by levying a certain percentage on the selling price, which would be the approximate increase over the ordinary net wholesale price, and which would be the appropriation for advertising and managing expenses.

As all advertising of this nature depends on long continuance for the fullness of its results, it is reasonable to suppose that the first year would not be as profitable as the succeeding years. A provision would be necessary that the members aid the association by making private sale of any balance which the association failed to dispose of in due time. Bee-keepers who are capable of intelligent marketing should also be encouraged in assisting the association by making independent sales whenever possible to do so at the association prices. There should also be a provision to return to the members in annual dividends all excess of the appropriation above selling expenses. The object should be, not so much to appropriate enough advertising to sell all of the honey in the country as to take care of the honey which is now sold at a sacrifice, and also to build up an *enormous demand* for our product at an advance of the present prices. If

the quality of our product could be assured to the public, our honey would not only sell for more to the consumer, but it would actually be worth more.

This problem is one involving a great many obstacles, perhaps the greatest of which is the question of getting the bee-keepers organized; but the profits are *sure* if we can once get a proper organization. How do I know this? Simply because the history of every successful institution has proven it. We are a fraternity of specialists who are thinly scattered, and who, I believe, are representative of more than the ordinary amount of intelligence. An organization of farmers would be impossible and impractical, but not so with bee-keepers. We have already proven the practicability of organization for selling, in several of our States. If we will now give the matter national prominence I am confident that bee-keeping can be put on a much more profitable basis in a short time. We know that the world is in ignorance as to our profession, and it is time that we blow our own horn and let every one know what kind of people we are, for it is certain that the glucose trust is not going to tell the world any thing to our benefit in their advertisements.

In writing the above I realize my limited knowledge of advertising. I do not claim to be an advertising man, but a bee-keeper; and I am trying to put forth this idea from a bee-keeper's standpoint. One thing we can all do; and that is, to look and see all around us the wonderful institutions which have been built up through persistent advertising alone. The advertising of a superior article will build up an enormous business. The question is, what are we going to do about it? and are we willing and ready to take advertising on its merits, judging from what it has done for other lines of business? If we commence advertising we must continue it on an extensive scale, for there is no use in shooting elephants with a pop-gun. Such an association is going to require some money and backing; but the final results will much more than justify the outlay, and will increase the demand for the association article and raise the price far in excess of the initial cost of such an advertising campaign.

As I am one of the committee to look into this matter I feel the need of suggestions from practical bee-keepers everywhere. Write your ideas to me personally or to your association, with which I shall eventually confer. Will you do at least this much for the present promotion of a national advertising campaign? Will you give your hearty support to the movement when the time comes that bee-keepers will see and embrace this opportunity to enlighten the world as to our product, as to its purity, heathfulness, the facility with which they can be served—to sell our honey everywhere to everybody, and to place our industry deservedly high in the estimation of the American people?

Hebron, Ind.

INSTINCT ALWAYS THE SAME.

BY J. E. HAND.

Considerable space in bee-journals is being devoted to the subject of eliminating the swarming instinct of bees by careful selection and judicious breeding. While examples are not wanting to prove the wonderful possibilities along the line of selection and breeding, there is a limit to man's power in this direction. He may, by careful selection and judicious breeding, establish a strain of bees that will unerringly transmit to their posterity characteristics of a highly desirable nature, such as gentleness, hardiness, industry, etc., but he can not take one iota from the nature of one of God's creatures. Every female that is born into the world in a normal state is endowed from on high with the mother instinct; that is a part of her nature, and no amount of selection and breeding can rob her of it. We hear a great deal about Leghorn fowls having been bred for egg production for centuries, until finally a non-sitting strain has been propagated.

The writer has been interested in poultry all his life, and especially in Leghorns for commercial egg production. He has not allowed hens to incubate their eggs, and from their roaming disposition and their wonderful power for egg-production they are not as prolific breeders as some other kinds; yet the mother instinct is as highly developed in Leghorns as in any other breed of fowls. Let no man delude himself with the idea that he can propagate a non-sitting strain of fowls or a non-swarming strain of bees.

In this connection I wish to quote the words of Moses Quinby, a man of wonderful intellectual powers, and an authority on apicultural subjects: "Let us fully understand that the nature of the bee, when viewed under any condition, climate, or circumstance, is the same. Instincts first implanted by the hand of the Creator have passed through millions of generations unimpaired, to the present day, and will continue unchanged through all future time till the last bee passes from the earth. We may, we have, to gratify acquisitiveness, forced them to labor under every disadvantage; yes, we have compelled them to sacrifice their industry, prosperity, and even their lives have been yielded, but never their instincts. We may destroy life, but can not improve or take from their nature. The laws that govern them are fixed and immutable as the universe."

Birmingham, Ohio.

Information Wanted in Regard to Conditions in Virginia.

I have read considerable about different bee localities, but I have never read any thing about the possibilities of bee culture in Virginia. I should like to hear from some of the bee-keepers from that State. What part of the State is considered the best locality for bees? Will sweet clover grow there? and what is used mostly for honey production? WM. FITTERLING.

Palisade, Colo., Feb. 6.

Heads of Grain

from Different Fields

The Condensation of Moisture in a Hive in the Winter.

If a pan of water is boiling on a stove in the winter time when the outside temperature is about zero, water will soon be running in drops down the windows; but there will be none on the walls of the room, as they are double, and therefore warm The glass, on the other hand, being thin, is cold, and the moisture in the air is quickly condensed. This is just the principle made use of in Jay Smith's winter cases as illustrated on page 999, Oct. 1, 1909. The sides and bottom of the hive not being protected, they are kept cold; and the top, protected by the cork cushion, is warm. Instead of cork I use cushions made of rabbit fur directly over the super covers. Over this I put a sack of clover chaff from the clover-huller, as this is very fine and compact. This latter cushion is 6 in. thick. Over all this I put a Smith winter case 14 in. deep, covered with galvanized steel. A weight in the shape of a stone on the top of the telescoping cover makes the packing still more compact. My entrances for strong colonies are 3 x ⅜ in., and still smaller for weaker colonies.

The colder the sides and bottom of the hive when the inside air is warm, the less moisture there is in this air; therefore the bees are warmer and more active, for they do not feel the cold so much if the air is dry. The smaller the entrance the better, just so the bees have pure air.

I run for extracted honey, and do not use excluders. With Jumbo brood-chambers, would a queen under these conditions lay eggs in the four outside frames of a twelve-frame hive? or would she go up into the center frames of the super, allowing the four outside frames to be filled with pollen and honey?

How many frames of brood would an average frame of pollen enable the bees to rear?

Jonesboro, Ind. C. A. NEAL.

[Your philosophy regarding the condensation of moisture is correct; but we advise you not to go too far in making the entrances too small, else you may rue it in the spring.

With regard to the queen and how she would scatter her brood when using a Jumbo brood-chamber, much would depend upon the queen and the time of year as well as the honey-flow that may be on. We can hardly tell you whether she would go above or below; but we think she would give the preference to the brood-nest, as a queen is inclined to spread out *laterally* rather than go above a beespace into another set of frames.

As to your last question, we can give you only a very poor guess. One frame of pollen may be sufficient to furnish a colony all the nitrogenous element it would need for brood-rearing, if none were being gathered, for two or three weeks, or perhaps for even a longer period.—ED.]

Red-clover Bees do Work on Red Clover.

There has been some discussion in regard to long-tongued bees, and it seems to me some of our queen-breeders have been criticised more than they deserve. Although not a queen-breeder I rear a few queens for my own use, and I have also bought queens from different breeders. What I have to say has not been solicited by any one.

I have bought the so-called red-clover queens, and they have given perfect satisfaction. Do they work on red clover? Last year was very dry, and there was scarcely any white clover in blossom here; but the bees were fairly wild on the red clover, and it was the first crop too. When it was cut for hay a day afterward, I went out to see if it was ready to put in the barn; and, to my surprise, I could see bees still tumbling around over those heads of red clover that had already been mown a day, and were nearly ready to be put in the barn. Bees not of the so-called red-clover strain were nearly idle, with the exception of one colony whose queen, a yellow one I bought of Swarthmore. This colony also worked well on red clover and stored a fair surplus; but the bees from this queen are not hardy. Now, I hope our good queen-breeders will continue their good work with due respect to any Burbank follower who can give us red clover with corollas short enough for honey-bees with ordinary tongues to work on.

Deerfield, Minn. J. F. BRADY.

The Proper Location of an Apiary in a Pasture Lot Next to a Wheatfield.

I am in trouble about my bees. I live in a small town, and last year rented two adjoining lots for my chickens and bees. These have now been sold, so I must move the bees to a new place. I have the use of three lots across the alley from the rectory as a pasture for my horse; but the bees seem cross, and I am afraid they will injure my horse. This pasture is about 180 feet square, and on the southwest side (where I had thought of putting them) is a neighbor's wheatfield. I do not want to be a nuisance to my neighbors either, Would it be safe to move my bees there (ten hives) if I fasten crash sacks along that side and in front, so as to compel them to rise above the height of a horse immediately after leaving the hives.

How close could I put the fence in front of the hives?

What is the "sweet clover" spoken of in GLEANINGS? Is it the sweet white clover? Can it be sown on land already in a fairly good sod?

Adamstown, Md., Feb. 13. G. W. THOMAS.

[We would not advise you to put the bees in the pasture lot up next against the wheatfield. There is always danger, when bees are so placed, that they will attack a team of horses when they go by drawing the mower and reaper. Your better way is to put the bees in the center of the lot, then put a fence around them to keep the horse from getting up close to the hives. Make the little yard large enough so that the animal can not get any nearer than 25 or 30 feet of the entrances of the hives. A still better plan would be to locate your apiary in your lot back of the rectory. If you place the entrances of the hives so that no one encounters the flight of the bees while they are at work in the fields you would probably have no trouble from their stinging any one. Of course, you would observe the usual precaution of using smoke and avoiding all robbing.

The sweet clover usually spoken of in GLEANINGS is the white. There are two other (yellow) varieties, one known as *Melilotus Indica*, which is an annual, and *Melilotus officinalis*, which is a biennial. Both are good for honey, and bloom a little earlier than the ordinary white sweet clover.

In our judgment you could not grow any sweet clover on well-sodded land. It seems to thrive best on embankments, side hills, and where almost nothing else will grow.—ED.]

W. S. Pouder's Method of Liquefying and Bottling Honey.

Does Mr. Pouder always leave the top of his filling-tank uncovered? and will the effect be damaging to the honey if closed?

Whitestone, N. Y. ADOLPH LOEHR.

[Mr. Pouder replies:]

We leave off the cover of our filling-tank while in use, because some vapor from the heated honey would condense on the under side of the lid; but I would not consider the matter of very much importance, as not enough moisture would accumulate to injure the honey. After the lid is removed from my filling-tank I still have in place a removable strainer made of finest wire gauze which protects the honey from dust or insects. I have an improved and rapid method of liquefying honey which is all strained into my filling-tank, and the tank is then used to bring honey to the proper temperature for bottling, which it does rapidly and uniformly.

Indianapolis, Oct. 16. WALTER S. POUDER.

A Sour Smell around the Hives that did Not Come from Goldenrod.

There was a big crop of aster here this fall, and some of my hives were filled up to the outside frames, so I have but little fear for the winter, I winter outdoors without any packing, simply contracting entrances to ⅜ x 8, and I never have any trouble as long as there is a good fall flow.

There has been much discussion about the sour smell around the hives in the fall, and somebody said it came from goldenrod. There is but very little goldenrod in this locality, the fall flow being almost entirely from aster; yet the sour smell was very strong in and around my yard.

Louisville, Ky., Dec. 16. J. B. CHRISLER.

[It has been reported that certain fall sources of honey would give off a sour odor. We have never noticed any thing of that kind in our locality. We are not so sure but asters have been mentioned in this connection. Perhaps some of our readers can throw some more light on this subject.—ED.]

Some of the Alexander Plans Not Suitable for Average Localities.

Will you please answer the following questions?

1. Would it pay to run a few colonies for extracted honey, and extract it often, and feed it during the honey-flow to colonies run for comb honey, so as to get a greater surplus of comb honey as Alexander advocates?

2 Which feeder for brood-rearing do you consider best for spring use—the Alexander or the Doolittle?

3. What is your opinion about extracting the honey from the hives in spring to make room for brood-rearing, and then feeding a little warm syrup daily as Alexander did? Would they not rear brood as fast from their capped honey in the hive if given some water and kept warm?

4. Will two or more mated queens in the same hive lay eggs during the honey season without molesting each other, as Alexander's experience indicates? What is your experience in regard to this?

5. Do you know why a plurality of queens in a hive tends to prevent swarming?

6. Would you advise me to rear my own queens? I need about three dozen this spring, and I have never reared any.

7. Do you know whether extracting the honey from extracting-supers every week will cause the bees to store more honey than if the extracting-supers were tiered up on the hive, and all left to be extracted at the close of the season?

Swea City, Ia. ALBERT SWANSON.

[1. Under some circumstances this may be practicable. Ordinarily we would say, however, that it involves too much expense and trouble; but sometimes the seasons are so peculiar, and stop off so suddenly, that it is necessary to feed back extracted honey in order to get a large number of unfinished sections properly filled for market.

2. The Alexander and Doolittle are both good feeders for brood-rearing. The Alexander is a little handier when it is once applied. The Doolittle feeder, however, is easier to put into the hive, because it involves no change of the hive-stand. If the brood-nest is full of frames, then the Alexander feeder is the better.

3. We would not advise it. Alexander lived in a peculiar locality; and what was possible and practical for him to do, very often was not feasible for others under different environments. Bees will not raise brood as fast from capped honey as when fed daily a thin syrup.

4. Usually it is not practicable to run more than one laying queen in a brood-nest at a time. Sometimes during the height of a honey-flow two laying queens will work together side by side; and, under some peculiar conditions, as many as a dozen or more may be so worked; but the average beginner (and we would say most veterans) would have all kinds of trouble in trying to work the scheme. Our experience is that it is not practical, as a general plan, for the production of honey.

5. No, we do not; and you will remember that Mr. Alexander said he could not explain the reason. We would somewhat question whether a plurality of queens would keep down swarming. It may have happened to do so in Mr. Alexander's case for the one season; but for year in and year out it is our opinion that, even if it were practical to work more than two queens to a brood-nest, it would have rather the opposite tendency—namely, to force swarming. A crowded brood-nest (or, rather, a lack of room for brood with a large force of bees) is one of the conditions for inducing swarming—not checking it.

6. We would advise every bee-keeper to learn something of the art of rearing queens. Where one does not require more than two or three dozen in a season it is probably cheaper and better for him to buy them in dozen lots. If, however, he requires anywhere from two to three hundred, he would do well to learn the art of queen-rearing and rear the bulk of his own queens. To change or renew stock he should buy some breeders.

7. We do not believe there would be much difference in the amount of honey stored. The difference, if any, would be in favor of the colony whose combs were constantly extracted; but there would be a greater difference so far as the work is concerned, and that difference would be in favor of tiering up and not extracting until the end of the season. The honey would be riper and richer in every way. Where one can afford to have a large number of combs we would advise him to tier up and extract toward the close of the season or after it, as it is more convenient.—ED.]

Black Chickens Stung to Death, and the White Ones Escaped.

Last spring a stray swarm came into my yard and clustered on a pile of supers. I was away from home at the time and could not attend to them, and they became very cross. We had a hen with a flock of twelve chickens running in the bee-yard. Seven of them were black and five were light. The bees stung every one of the black ones to death; but all of the light ones escaped. Was it just a "happen so"? I think not.

I hived the swarm on my return home the next day, and they made nearly 100 lbs. of surplus honey, so I was well paid for the chickens they killed.

J. RIDLEY.

[The fact has been noted over and over, that bees are more inclined to sting black clothing than light. Numerous reports have shown how bees will sting black dogs and black chickens when they will not attack white ones. As a general thing, bee-keepers when among their bees should wear light-colored clothing; and while we go among our bees with various kinds of hats, wearing light and dark colored suits, yet when one expects to work among bees day in and day out he had better adopt the light or white colored suits and hat, not only because they are less objectionable to the bees, but because they are more comfortable to the wearer.

As indicative of how bees will sting a black spot on a dog, the following, from Mr. H. C. Driver, will be found to be a case in point.—ED.]

Bees Sting a Black Spot on a Dog.

A few years ago we had a pup that had one black ear and a black spot on the rump—the furthest from the "bark," and part of his tail. Whenever he went near the bees so as to cause them to sting him they would be sure to attack him on these black spots, and, as nearly as I can remember, I do not know of a single instance when they stung him elsewhere, although they may have done so. It seems to me I can see him yet, sliding along, trying to scrape the bees off, and rubbing the one side of his face and black ear over the grass as he came down through the yard.

Another reason why I think bees are more inclined to sting dark clothing than light is this: I very frequently wear a black shirt among the bees; and, to prevent being stung so badly, I wear a white jacket over this. For a while this jacket was ripped near the shoulder, and the bees would sting me furiously here, where the black shirt was exposed, and would line all around the sleeves where they extended out from underneath the jacket, and sting.

Beech Creek, Pa., Dec. 20. H. C. DRIVER.

Feeding Granulated Honey at the Entrance of Indoor Colonies.

I put my bees in very light this fall. The cellar keeps about 42° all the time, and I have been feeding them candied honey at the entrance. They seem to be doing very well; but I should like to know if I am doing right. I have 80 colonies, and wish to bring them through if I can.

Harper's Ferry, Ia. T. KERNAN.

[You can use granulated honey in the way you describe; but rock candy made of pure granulated sugar would be a better feed, and there will be less waste. The bees will utilize the free honey or liquid portion among the granules of granulated honey, and the dry granules themselves will be left untouched, probably much of it falling on the cellar floor.—ED.]

Comb-honey Separators of Perforated Galvanized Iron.

Instead of wire-cloth separators in comb-honey supers, why not use separators made of galvanized iron, the spaces punched out, for which an inexpensive machine could be used? I should think they could be made cheaper than of wire cloth, and be easier to clean when necessary.

Fredericktown, Mo., Jan. 18. J. BACKLER.

[A few years ago perforated metal separators were discussed to a considerable extent in these pages, and many thousands of them were sold, and used by bee-keepers, especially in Great Britain; but in late years, on account of their coldness, wooden separators or fence separators have very largely taken their place. A wire-cloth separator does not have the same body of metal for the surface that a perforated metal separator has, and, consequently, it is not as objectionable from the standpoint of cold. From our general observation of the use of the two kinds of separators it is our opinion that the wire-cloth separators are so far ahead of the perforated metal ones that the latter ought not to be considered at all.—ED.]

The Shaken-swarm Plan Without Increase.

Here is a plan for preventing increase on which I should like your opinion: Having all hives set in pairs during fruit-bloom, place a super of sections on each one, allowing the bees to draw out the foundation. At the beginning of the clover flow place a third hive between each two, putting the two supers on it. Then shake the bees and queen from hive No. 1 before the entrance of this third hive, as well as all the bees from No. 2 except one frame, with the adhering bees and queen. Place this frame of bees and queen from No. 2 back in its own hive, and set this hive away, putting a queen-excluder over it, and then hive No. 1, with all its brood, on top, all unsealed brood to be placed below the excluder, and the sealed above, the object of this being to get the upper hive ready for removal as soon as possible.

Would not this last colony build up very quickly? and should there not be enough bees to take care of the brood? A double hive of brood should make a rousing colony.

The shaken swarm, having practically all the bees from two hives, ought to do well. If I am wrong, please let me know; but the plan appears very simple to me, and one that promises much. I use Danzenbaker hives.

Frankfort, N. Y. W. E. BENNETT.

[The plan you propose is feasible, except that there will be danger that the brood in No. 1, moved to a new location, would become chilled on account of the lack of sufficient bees to take care of it. If, however, when the flow opens up, the nights are hot the young hatching bees will take care of the unsealed brood in the lower story. It would be far better for you to put in No. 1 *more* bees if you wish to carry out the plan.

Yes, colony No. 1 will build up very rapidly after the young bees begin to hatch, and the hive on the old stand ought to do well also. As a general thing, however, you would do better to follow some one of the plans for shaking laid down in our text-books, or, better, try your plan and one of these others, and compare results.—ED.]

Bees Clustering Below the Frames in Outdoor Wintering.

On page 32, Jan. 15, Dr. Miller says the colonies which look "goodest" to him in his cellar are those which cluster below the bottom-bars, etc. The editor answers this by saying that in outdoor wintering if the entrance is of the usual size the bees would hug up against the top of the hive. My experience with some of my colonies this winter convinces me that there are exceptions to this rule. Every fortnight or so I take a stove-hook and push it into the entrances of my colonies to rake out the dead bees. I have 20 colonies, 18 packed in leaves with tar-paper covering, and 2 which I bought later are newspaper wrapped with a grocery box telescoped over them. Each time when I did this cleaning, in 3 of these 20 colonies I pulled out *live* bees with the dead ones. I can't see the cluster in those covered with tar-paper, because of the air-space between the same and the entrance further in; but the one packed independently, with an entrance ⅜ x 4 (which I think is a usual one) has the cluster directly in front over the entrance *clear down to the bottom-board*. It was there when I purchased them early in December, and has remained there until now. This is a 1910 swarm, in fine shape when I bought them in a ten-frame hive filled full of honey. I conclude that the two packed under the tar paper have the cluster in the same position. The entrances there are about ½ x 3 inches.

Ashton, Ill., Jan. 23. REV. GEO. A. WALTER.

[A good deal will depend on the temperature outside when you rake the dead bees out of the entrance. The average position for a cluster of bees for outdoor-wintered colonies is in the front part of the hive and directly over the entrance. As the weather warms up, the cluster will naturally expand, reaching down to and possibly coming in contact with the bottom-board. It is presumable that you would not attempt to rake out the dead bees on the coldest days, but only during moderate weather. If so, it is not at all surprising that you would rake out some live bees. We would not suppose that you would care to disturb the bees in zero weather, and hence we assume that the time for raking out the bees would be when the weather had moderated.—ED.]

Number of Bees in a Quart; When to sow Buckwheat.

I have had quite a curiosity to know how many bees there are in a full-sized swarm. A day after some very cold weather it was warm enough for the bees to clean house, and from one hive about half a pint of dead bees were carried out; and on making a count I found there were 737, which would be nearly 1500 bees to the pint, or about 3000 to the quart. When I examined the dead bees I found that not many of them were bloated.

What kind of meal is best to use for artificial pollen? We never have enough natural pollen; and when should this artificial pollen be supplied?

How late can buckwheat be sown for honey? I care nothing for the grain. It is the blossoms I want.

By looking at the map I find that our location here is a little south of Medina, so the weather conditions must be very nearly the same so far as temperature is concerned.

Goodland, Ind. DR. M. L. HUMSTON.

[Your count of the number of bees in a pint or quart is about right according to the count made by our Mr. A. I. Root many years ago. A quart of bees weighs about ¾ of a pound. We figure in round numbers that 5000 bees make a pound.

Theoretically the best meal to feed for artificial pollen is a pea or bean meal, because both are rich in nitrogen; but for all practical purposes a coarsely ground rye flour answers very well. Usually this will have to be fed outdoors from trays where the sun strikes it. As a general thing it is not practicable to give a nitrogenous food in the hive except by giving the bees a candy made of meal and granulated sugar. Rye meal in trays should be given if the weather warms up suddenly and there are no natural sources of pollen. When bees need pollen they will be found frequenting stables and chicken-houses, or a place where mixed chop feed is given; but as a general thing nature supplies pollen about as soon as the bees can use it to advantage. Ordinarily we do not fuss to give artificial pollen.

We have sown buckwheat as late as Aug. 15, and secured a good crop of seed. If one does not care for the seed, and is willing to risk an early frost, he can sow as late as Sept. 1, or possibly as late as the 15th. Much will depend on the locality. Buckwheat is a rapid grower; but if it should be touched by a frost it would be well to plow it under immediately; for the wilted stalks do not do very much good to the soil.—ED.]

Reo Runabout for the Apiary.

On reading your article about the Sears automobile I decided to drop you a line. I have a single-cylinder Reo Runabout that I find very handy for bee-work. I can put on 400 lbs. behind the seat and make 25 miles an hour. I have made 175 miles in a day.

La Salle, Col., Jan. 25. W. T. BRAND.

Poultry Department

By A. I. ROOT

THE CHICKEN BUSINESS IN FLORIDA; ITS POSSIBILITIES, ETC.

On page 27, Jan. 1, I made the following remark: "The explorer in nature's domains meets with many disappointments, and as a rule follows many false scents, etc.," and I want to give you an illustration right here. On the next page (after the above) I mentioned a buttercup hen that laid a very long peculiar egg every other day. Well, as she kept this up for several weeks I began to think she might make a pretty good record after all, say close to 200 eggs in a year; and as these long eggs contain almost a half more than a common-sized egg, and as she has never yet offered to sit, she might be quite an acquisition after all. Accordingly I began putting her eggs under hens and in the incubators; but—what do you think? Not one long egg hatched a chicken. It is true there was a large well-developed chick in almost every egg; but the shell was too thick or something else, for none of them seemed to get out. Let me digress a little.

For some time back I had noticed the advertisement of an incubator that was warranted to hatch every fertile egg into a good strong healthy chicken, or something like it. In fact, I believe I remonstrated with the makers, telling them that the best incubators in the world gave more or less chicks "dead in the shell." Their answer was that they would be exceedingly well pleased to have me try one of them; and if it did not do all they claimed, they would expect me to report the full truth, either for or against them, in my well-known frank and honest way. They said they would be quite *willing* to take their chances. Accordingly I paid them $7.00 for a Buckeye incubator, they agreeing to pay the freight, as it was so far away. Now, the Buckeye is a very pretty little incubator for the money, even if it is not as well finished as the new Cyphers; and, to be frank, it does not regulate as easily and hold the temperature exactly on the spot as does the Cyphers; but, much to my surprise, it actually did hatch every fertile egg but *one;* and this one was the one long Buttercup egg I put in to try them just *once* more. I then decided, rather sadly, I would give up trying to start a new strain of Buttercups laying extra long large eggs. But there were some more of these long eggs under some sitting hens; and it occurred to me they (my new breed of fowls) might, like ducks and geese, require more than the orthodox 21 days; and, therefore, after a hen had hatched all the chicks except from the long eggs I moved several of these to the incubator, and, sure enough, in from 22 to 24 days I had several nice strong Buttercup chicks.

Now, if you please, let us go back to that little Buckeye incubator that did, virtually, hatch every fertile egg. One swallow does not make a summer, and there are also quite a few "holes in a skimmer." The Buckeye holds just 50 eggs. I was somewhat surprised and disappointed to find, on testing out after 5 days, that 17 out of the 50 eggs were infertile. Let me say here before I forget it that the 32 chicks I took from the incubator were about the strongest and finest chicks I ever hatched, even under hens. They had big legs and great lusty wings, and were such a mass of down that I took them right from the incubator and set them loose in the Florida sunshine, and the whole 32 are alive now (two weeks old), and they never had a bit of artificial heat nor a hen to cover them. They just had the basket brooder I described about a year ago, with two cheap feather dusters hung to the handle (see page 806, Dec. 15). The basket (chicks and all) was carried into the incubator cellar every night for about a week. Now, why were there so many infertile eggs? Hens that stole their nests gave strong fertility. One found in the palmettos had 19 eggs, and 18 of them were fertile. I know that makes a big difference. This hen probably laid the whole 19 eggs, and very likely made it *her business in life* to see that every egg was a fertile one.

Once more, in testing eggs almost daily I have found that one particular hen lays a rough egg (that is, among the infertiles) every time. I really ought to spot her, and get her out of the way. Yes, I have tried swapping the roosters, and that may help the matter. Now you will have to let me digress just once more in telling my long chicken story.

Both of the two new poultry books put out by the *Farm Journal* people (The Million-egg Farm and the Curtis Poultry-book) recommend placing the eggs in the incubator with the small end down. Well, our apiarist, Mr. Mell Pritchard, told me over a year ago that a friend of his, when first filling his incubator, stood all the eggs on the small end until they were tested. Now, by so placing the eggs I got 81 eggs in the Cyphers tray (that was made for 70), and had 70 eggs strongly fertile (a trayful) at the end of five days. Of course, I could not turn the eggs for five days instead of three, according to the directions; but so far it seems (in two trials) to have made no difference to be noticed. One of our experiment stations has called attention to the fact that a sitting hen will always give a larger percentage of fertile eggs than any incubator. Just one thing more: After the chicks were out of that Buckeye I sold it to a neighbor, and sold her 50 eggs (from the same yard) to go with it. She has just sent word that only 22 of the 50 eggs proved fertile. Oh dear me! both lots of eggs that were so poorly fertile were fathered by my Buttercup rooster that I called worth $25.00.

YOUR MONEY BACK IF YOU ARE NOT SATISFIED.

It is getting to be quite the fashion now-

days to sell goods with the above understanding or agreement, and there is certainly an element of good in it. It has been suggested that the average country merchant can not stand such competition; but my opinion is that many, at least, of our country merchants will soon be obliged to step up a little higher. It is the Christian-like way of doing business. As a rule I have never been very favorably impressed with medicines and "tonics" for chickens; but recently our enterprising "chicken doctor," Dr. Conkey, of Cleveland, O., sent out one of his circulars about his "tonic" to make chickens lay, with the agreement, "money back," etc., with such extravagant claims that I ordered a 25-cent trial package of his agents in Tampa. Let me explain that our laying hens had not been doing very satisfactory work at any time since we came down here last November. Mrs. Root declared that many of them were too old, and advised selling them off; but it is, as a rule, bad policy to sell hens in the spring time, even if they are old. Well, they *did* start to lay better within two or three days after getting the tonic; but before rushing to conclusions we had better consider that it is just now spring time down here, and we have just been having an unusually warm and pleasant January. Besides, neighbor Rood has just commenced culling out his broken-headed cabbages and lettuce that will never make a head, and this thing alone should account largely for the increased egg yield; but there is one thing *more* about this egg tonic, and this is the very thing that has induced me to write it up. When I opened the package it set me to coughing and sneezing at such a rate I had to carry my wheat shorts and medicine out into the open air, and then I was obliged to turn my head to avoid the strong fumes of cayenne pepper and some other stuff I failed to recognize. Of course, I have known for years that poultry are fond of pepper, mustard, and other pungent herbs; but it was one of my "happy surprises" to see my whole dozen yards of over 300 chickens get into a panic just as soon as they had fairly sampled the new concoction. Let me stop right here to say Mrs. Root has been advising me to get rid of the Leghorns just because they persist in thinking they are going to be *killed* every time a stranger or any thing unusual comes into the yards. Why, a few days ago, when I had more eggs than I could carry in all my pockets, I took off my fur cap to hold the contents of a big nest. Just as soon as I came in sight bareheaded, the whole tribe (hens and roosters) including a hen and chickens, ran and yelled "bloody murder," and when a customer wanted a dozen White Leghorn hens I was obliged to go out in the night with a lantern to get them. Well, with a pailful of middlings or shorts with a few tablespoonfuls of this tonic well stirred in, and wet up with water, I think I could pick up every wild chicken on the ranch, they are so crazy for it. May be it contains something fowls don't get down here in Florida; at any rate, it is worth all it cost to me to get my chickens tame, to say nothing about bringing in the eggs.

Now, lest I give friend Conkey a bigger testimonial than he deserves, let me remark that I recall that my brother last summer used to make a sort of "stew" of every thing the chickens liked, such as cheap fish boiled up and mixed with bran or shorts; and, as nearly as I can remember, he used the same old pail and long-handled spoon that I used. But how about the chickens I have hatched and reared since he left and went up to his Michigan home? Again, why did not Dr. Conkey, in his "flaming poster," say that chickens would be crazy for it after they once got a taste? After giving Dr. Conkey all this free advertising for his tonic, I want to say to him (and all the other venders of medicines for chickens), is it not time to stop charging half a dollar for a little box of salve that could be afforded for a dime and perhaps for a nickel?*

The great mass of poultry-keepers are poor people and do not have *dollars* to invest in things that may be needful. Are not small profits and large sales the better way to build up a big business?

FEEDING SULPHUR TO CHICKENS AS A PREVENTIVE OF VERMIN.

This in answer to query, page 806, Dec. 15th issue, "Does sulphur taken internally with the food get into the circulation so as to show its presence on the surface of the body?" I know as a matter of fact, and by my own experience and that of others, that if you use, say, half a teaspoonful or over of sulphur daily for a few days, say a week, then take your woolen undershirt and shake or brush the inside of it over a hot stove you will receive a decidedly affirmative reply to the query; and if with the human, why not with the hen, she retaining it under her feathers, where the heat of her body would generate sulphuric-acid gas—death to insects, etc.

FEATHERS FOR BROODING CHICKS.

I have been using a "hover" in a fireless brooder for about five years. It is made of mosquito-netting, hanging loosely, filled with loose feathers, with a thin cover tucked over feathers tacked to frame of hover. It gives plenty of ventilation, and is good for the chicks.

Elwood, Ind. D. NEILSON.

SOREHEAD; POND'S EXTRACT A REMEDY.

I have just read your letter in GLEANINGS for Sept. 1. Try dipping your chickens' heads in Pond's extract two or three times. It will, I think, cure sorehead every time.

REDBUGS; WET SALT A REMEDY.

As to redbugs, I have found that rubbing thoroughly with wet salt will knock them. I hope you will find these things satisfactory.

When you spoke of the cornfields of Southwestern Ohio you made me homesick.

Greenville, Texas, Sept. 7. T. P. FLAIG.

SULPHUR FOR VERMIN; STILL MORE ABOUT IT.

Bro. A. I. Root:—In regard to sulphur ridding poultry of insects, I will say it might be all true. Years ago I used to handle Texas range horses, and many of them would be so full of ticks that it

---

*After paying 50 cts. for a box of salve for "stick-tight fleas" I afterward got a nice little bottle of carbolated vaseline (at the drugstore) for 5 cts., and the latter was even better, for it did not take the feathers off the chicks. I am glad to add that this winter we have so far no fleas at all, nor any thing else on the chicks, little or big.

did not look as though another tick could find a place to get hold. I would give all such horses a big dose of sulphur, and blanket well for two nights. The ticks would then disappear.

Caldwell, Ida. J. E. MILLER.

"STICK-TIGHT FLEAS," "SAND FLIES," ETC.

I note your attack on so-called "sticktight fleas." We have a few here on our young biddies, but I raise about 200 every year, and all I do is to grease the old hen well under the wings, and the biddies will get grease on their heads, and that will run them off. We crackers call them "jiggers," or "chicken fleas," and the old crackers say the Yankees brought them here from the North.

But speaking of gnats as a biting insect caps the climate. We have gnats here, but I never heard of their *biting* even a Yankee. You are mistaken. Your so-called *gnat* is a "sand-fly" that breeds in the sand along the coast. Oh! but they do bite, and will go through any cheese-cloth and in your hair; but we have none in the Lake region. Gnats are troublesome at certain times of the year. They are particularly fond of your eyes, ears, and nose, but will not bite. Well, friend R., I have a formula that will drive away all gnats and sand-flies, but I scarcely know whether or not to give it to you, as you might form a bad habit. I never tried it, but have seen it tried by the old crackers further south. Take a stick, say three inches long. If your mustach is not too long, put a small piece of well-dried cow-chip on one end; set fire to it, and go about your daily avocation. Hold the stick in your mouth.

Winter Haven, Fla. A. B. KREIDER.

CONTROLLING THE SEX.

Here is still another testimonial, and it comes from a State entomologist and from an experiment station of national celebrity. You will notice at the close the author says he prefers not to have his name published.

STATE OF MINNESOTA,
ENTOMOLOGIST'S OFFICE,
AGRICULTURAL EXPERIMENT STATION.

Mr. A. I. Root:—I note in your October 15th issue an experience that both you and a Mr. Blair had with certain matings of fowls. It may interest you to know that, several years ago, in Oregon, I had a large Barred Plymouth Rock hen, very heavy, and a prolific layer. I mated her with a Silver-lace Wyandotte rooster, carefully preserving the eggs. From these eggs I obtained a goodly proportion of hens, as I remember it, and every hen was a jet black with a metallic luster and blackish legs, fairly heavy, and an excellent layer. The roosters from these eggs were all marked like Plymouth Rocks—that is, like their mother.

If you make use of this information, kindly do not make use of my name.

St. Anthony Park, Oct. 26.

You will see from the above that both pullets and roosters all take after the mother. I confess this whole thing is a puzzle to me. Suppose we have a Barred Plymouth Rock male with Wyandotte pullets. In that case would the chicks, pullets, and roosters all take after their mother? Will those among our readers who have had experience in this line tell us about it?

A GOOD WORD FOR BURBANK AND THE WONDERBERRY.

Mr. Root:—In Dec. 15th GLEANINGS the wonderberry is referred to again in not very complimentary terms, therefore I take up my pen in its defense. We raised quite a patch this season, and canned some twenty quarts when they got ripe, and yesterday we had wonderberry pie for Sunday dinner, and the whole family pronounced it delicious; and I think future generations will rise up and bless the name of Luther Burbank. You are right in regard to the *size* of the garden huckleberry; but if it were as *large again* I would call it worthless.

Greenfield, Ill., Dec. 19. W. G. SECOR.

Health Notes

By A. I. ROOT

CURING OUR TROUBLES WITH DRUGS AND MEDICINES; HOW MUCH CREDIT BELONGS TO THE MEDICINE?

For a long time I have felt that I have had something to say on this subject; and my good friend Keck, at the close of his article (see page 709, Nov. 1, 1910), seems to call forth just now what I have long had in mind. I am sure you will excuse me for intruding some of my personal afflictions, especially if you have patience to follow me through.

Twenty years ago or more I noticed a queer spot on my back. At first I thought it was a form of eczema; but it grew so slowly, and resembled a wart so much, that I let it pass until I discovered of late that it was increasing in size and had got to be about as large as a silver half-dollar. Noticing what the Cuticura people say about their salve for eczema I commenced using it every time I took a bath, say once a week or oftener. This was about two years ago. I used it faithfully for about a year, but it seemed to do no good. In fact, I felt that the spot kept getting larger; but in noticing on their circulars that some things of that kind need an application every day, I commenced putting on Cuticura daily. After about a month of this treatment I was satisfied that the trouble was disappearing. By another three months it was almost entirely gone, and at the end of the year there was hardly a scar to show where it had been.

Now, the above, if I were to stop here, would make a splendid testimonial for the Cuticura people who charge 50 cts. for a little tin box of their salve containing scarcely more than a teaspoonful. While this was going on I was also fighting stick-tight fleas on our own chickens. I greased their heads with a salve that cost 25 cts. a box, and a very small box at that. Somebody suggested in a poultry-journal that vaseline is just as good as the high-priced salves; and carbolized vaseline, that costs only *five* cents a box, is still better; and my brother, a druggist, ventured the suggestion that any kind of grease, say chicken oil, would be just as good as the high-priced salves. And then it occurred to me that simply greasing the spot on my back every day with *any* kind of oil or grease might have accomplished the same result. Now, friends, who is right and who is wrong about it? With my busy life I can not well make tests that should settle the matter. Our experiment stations, equipped by our different States, or hospitals, perhaps, should make the test and inform people. When I protest against the enormous price, 50 cts., for a little bit of box of Cuticura, I am told by friends that the manufacturers *must* have an enormous profit to pay for advertising, and that without this enormous and expensive advertising

they could not catch the millions of people, and cure them as they have cured me. Notwithstanding, I do think they might make a smaller price and *still* get rich. Let me say to their credit, however, that the voluminous circular or pamphlet they send free on application, telling all about our skin diseases, is certainly worth something. In this respect they are doing missionary work.

Now, while I am about it, I want to speak of poultry remedies. In one of the journals right at hand, about twenty different maladies among chickens are mentioned, and a medicine is prescribed for each. The price is 50 cts. a box. There is quite a lot of salves, and different kinds of salve for each malady.

Now for the last paragraph in friend Keck's letter. Some months ago I got a box of the remedy he mentions—Yougart. I have been taking two tablets every day, and my digestion has been excellent; but at the same time I have been taking a daily bath, massage, and going without my suppers. Was it the Yougart that made me feel so well or these other things? As Dr. Miller often says, "I don't know." I have been praying that the heavenly Father would give me wisdom in all these matters. I do not know that I should have mentiontioned Yougart at all; but about two weeks ago I finished the little box, and my digestion has not been so good since then. Was the Yougart so beneficial or was it something else? T. B. Terry has recently declared quite vehemently against charging a dollar for this little box of tablets containing concentrated buttermilk or something of the sort. Yes, a great lot of other people think as friend Keck does, that they have been greatly benefited by Yougart. But, listen. Since I have spoken about Oxydonor and Oxygenator, a lot of circulars have been sent me. I will mention briefly one of the testimonials. A little girl had fits. Her mother paid doctor after doctor big sums of money, but her affliction became worse instead of better. Then she paid $14.00, or perhaps $40.00 (I can not remember which), for that silly trap about as big as a nest egg, and hitched it to the girl's ankle by means of a wire. She never had any more fits afterward, so the mother said, and was getting strong and well. How do I explain it? Well, the most probable explanation to me is that no such mother or little girl ever existed. Some mother may have been *hired* to furnish the above. The Duffy whisky people are accused of doing this kind of work; but if there is such a mother and little girl, nature might have got ready just then to help the little girl outgrow her malady.

Let me repeat an incident of some little time ago. I got a severe "crick" in my back by lifting. Ernest said an osteopathic doctor could fix me out immediately, so I would be all right in the morning. I said I would give five dollars to have the thing done. I was interested in it from a scientific point of view. Ernest telephoned the doctor to come right down; but he was away from home, and could not come till the following morning. But the experiment was never made, because, after I got a good sound sleep, I was entirely well. In the morning no symptoms remained of the distressing trouble of the night before. Now, in the above I am not saying any thing against the science of osteopathy. I am only reminding you of what everybody ought to keep in mind—that we get over things of this sort, many times, without doing any thing at all. Had the doctor come down and treated me, I do not suppose anybody could have persuaded me that his treatment had nothing to do with my recovery.

Now, when you are tempted to buy expensive remedies at the drugstore, think of what I have been telling you. Most of the liniments, witch hazel, etc., direct that they be applied with much rubbing, and the rubbing does the business, *not* the medicine. The State of Ohio saw fit to send a representative recently to talk with me about Electropoise, Oxydonor, etc. In speaking of the testimonials from those who have used them, I said to the doctor: "The directions for using Electropoise are, after hitching it on the ankle, to lie down on the bed, and remain so for an hour or more—well, does not common sense teach, as well as past experience, that if the average tired nervous woman will go off by herself in the middle of the day, and take a good rest, after an hour or two she will be greatly benefited?" He assented, and later I submitted the matter to Mrs. Root, and she said she had tested it a thousand times, and found it true; and she did not have any Electropoise hitched to her ankle either, thank God.

Heigh-ho! Right here comes a testimonial in favor of Electropoise. Read it:

Mr. Root:—In your issue for Oct. 1, p. 642, in your reply to Otto Saurer, you speak of the Oxydonor and Electropoise as worthless, with Mr. Collingwood, of the *Rural New-Yorker*. I think it is fair to hear both sides. I have no financial interest in either of these machines: but we have both of them, and either of them will cure (or perhaps I should say relieve) a case of frosted feet quicker than any other remedy I have ever known, and I have had the advice of one of the best physicians in the country too. When, a few winters ago, I used the Electropoise for another ailment at a time when my feet were so swollen and sore that I could hardly walk, the feet suddenly got well. I had made a discovery, and that without the exercise of any faith in the matter. I have, since that, tested this truth, and twice on cases where the men could not walk, and in every case the feet have got well as fast as possible, and without regard to their faith. Since my discovery I have wanted a chance to make it public. You have made the chance for me. You who have genuine Electropoises or Oxydonors, do not throw them away. Your neighbor may have trouble with his feet this winter.

ALANSON E. RITTENHOUSE.

State Road, Del., Oct. 7.

My good brother, you say in the above your feet "suddenly got well." I believe you, and I am glad they did get well; but how can you prove that Electropoise had any thing to do with it? See what I said about the crick in my back that disappeared so quickly that it seemed almost miraculous.

Let us now submit the matter to the good hard common sense of the readers of GLEANINGS. This Electropoise that you think cured you is much like the nickel-plated handle to a bicycle. Inside is some sulphur and a little sal-ammoniac. A wire is put through this mixture, and the other end of the wire is hitched to your ankle. The Electropoise is dropped into a bowl of ice water. No electricity passes through that wire. This can be proven by any battery-tester or volt-meter, and there is no science about it, as any scientific man can tell you, and I claim there is neither *sense* nor science about it. Hitching the wire to a horse-shoe would do the work just the same; or nailing the horse-shoe over the door to cure frosted feet would have just as much effect. I suppose the sulphur and sal-ammoniac are put in to make people believe it is something like a dry battery. The ice water is to make people believe that it works something like a thermo-electric battery, where the current is produced by keeping one part hot and the other part cold. You call it a machine. I submit to the readers of GLEANINGS whether it should be dignified by calling it a machine or a toy. It is exactly like the wire that was twisted about a nail in that $50 clock arrangement for curing various diseases—see page 642, Oct. 1st issue.

In your closing sentence you unintentionally inform us that a lot of people have paid out their money for Electropoises which have been thrown away, or probably tucked away up in the garret. In talking with a lady who insisted it is a good thing, as you do, she admitted she had not used it for *several years*. When I asked why she did not *continue* using it if it was such a "valuable instrument," she evidently found herself in a pretty close corner. Finally she got out of it by saying that even great inventions are usually forgotten after they have had their run. I reminded her that such inventions as clothes-wringers, sewing-machines, coal-oil lamps, telephones, etc., were none of them put away in the garret after they have had their run.

Now let us have another glimpse of patent medicines before closing. In my hand is a bulletin from the Ohio Food Department, presented by R. W. Dunlap, State Food Commissioner. In it is a list of all medicines found in our drugstores, giving the percentage of alcohol, cocaine, and other habit-forming drugs. How many different medicines are there in the drug-stores? Well, this book contains over 80 pages, and there are about 50 medicines mentioned on a page. Something like *4000* different medicines are manufactured and kept on sale to cure our infirmities! How many of these medicines do you suppose T. B. Terry uses in his family and among his grandchildren? Not one; and, may God be praised, there are a good many more families who use no medicine at all. Well, if I am right, people are beginning to learn that a large part of these medicines have no more to do with the recovery of the patient than Electropoise that our good brother tells us about. Of course, such things as corn-plasters, courtplaster, etc., have their uses, and it may be well enough to keep them in the house; but I begin to discover that, if we live and take care of our feet as God meant we should, there would be no need of corn-plasters.

This bulletin suggests that a large part of these medicines owe their virtue to the alcohol they contain. After taking the stuff the patient feels better as a matter of course; but a day of reckoning comes sooner or later, and sometimes it is a terrible reckoning. I was told of a lady a few days ago—a Christian who stands well in community, who had been taking *Peruna* until she could not live without it. Her family physician finally found out what she was doing, and told her it would be very much cheaper, and better for her health, to buy good whisky, and drink it every day, than to use what she was using. The representative of our Ohio Food Commission mentioned above informed me that Peruna had been taken in hand, and that hereafter all the Peruna put on the market would contain a sufficient amount of a laxative to *prevent* its being used as an alcoholic beverage. May God be praised for Ohio's Food Commission. Have you something like it in your own State?

SPOILING SHOES WALKING IN WET GRASS; SEE PAGE 569, SEPT. 1.

If you will obtain from the Albert H. Riemer Shoe Co., Milwaukee, Wis., a pair of wooden-soled shoes or boots, and have some one tack an extra sole of leather on them, then learn to walk flat footed, I think you will find conditions materially benefited. I am now using the pair I bought last October; have used them continually in all kinds of weather, and not had wet or cold feet. They come in whole sizes, 6, 7, 8, no half-sizes. They retail in Baltimore, shoes, $1.50; $3.00 for 16-in. boots.

Lake Roland, Md., Sept. 5. BENJ. B. JONES.

Friend J., there is another point in favor of wooden-soled shoes or something equivalent. Almost every fall when it begins to be cold and wet, if I do not look out and keep my feet dry and warm I have an attack of sore throat, catarrh, stoppage of the nostrils, etc. For some little time I did not catch on to the fact that these troubles were the result of going about with cold wet feet; and almost every fall I forget once or more times my former experience. Well, drying and warming the feet thoroughly, putting on dry stockings, and, if necessary, good warm overshoes, causes the sore throat to let up almost at once. I suppose it is mostly elderly people who have troubles of this sort. Now, there is something about it I do not quite understand. Wading about in the wet grass barefooted in the morning does not bring on sore throat nor any thing of that sort. Perhaps one reason is that, after this wading in the grass, the feet are wiped dry, and you put on good warm dry shoes and stockings. Sitting down, say, to read, with damp or wet shoes and stockings, seems to be what brings on the trouble. Although I have never seen the wooden-soled shoes, I have before had excellent reports from them.